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REVISED SYSTEM OF NATIONAL ACCOUNTS: DRAFT CHAPTERS AND ANNEXES

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CHAPTER I. INTRODUCTION*

A. BACKGROUND TO THE REVISION

1. This manual presents the System of National Accounts, or SNA, as revised in the late 1980s and early 1990s. The original United Nations System of National Accounts and Supporting Tables was first published in 1953. A major revision of the System was undertaken in the mid-1960s which culminated in the 1968 version published as A System of National Accounts, Studies in Methods, Series F, No. 2, Rev.3, (New York, 1968). The present version thus constitutes the second major revision of the original System.

A.1 The SNA as a System

2. The SNA consists of a logically consistent and integrated set of macro-economic accounts, tables and balance sheets which conform to a set of internationally agreed concepts, definitions, conventions, classifications and accounting rules. The System provides a comprehensive accounting framework for the compilation and presentation of macro-economic data in a format which is designed for purposes of economic analysis, policy-making and decision-taking. It should be emphasized at the outset that the SNA is a comprehensive and logically consistent System based on economic principles. The System may be implemented at the level of the economy as a whole or at lower levels of aggregations, such as individual sectors of the economy. While the System contains certain aggregates, such as Gross Domestic Product, to which considerable importance has been traditionally attached, the calculation of such aggregates or indicators for the economy as a whole is no longer the primary purpose for compiling macro-economic or national accounts. The detailed information contained in the accounts of the System constitutes a large and comprehensive data base of macro-economic statistics which is intended to serve a variety of different analytic and policy purposes. The calculation of a few key aggregates, or indicators, is only one such purpose.

A.2 Reasons for the revision

3. There are three main kinds of reasons for undertaking the present revision of the SNA, namely to update the System, to clarify parts of the System and to harmonize it with other statistical systems.

A.2.1 The need to update the SNA

4. After a period of more than two decades since the 1968 revision, there is inevitably a need to update the System to take account of changes which have taken place in the intervening years. These changes are of various kinds.

- The economic systems to which the accounts relate have themselves evolved in various ways, such as the relative decline of agriculture and the growth of services in many economies. Some methods of production and patterns of consumption have changed considerably in many countries as a result of rapid technological progress in fields such as information processing, telecommunications and air transportation.

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* Draft not reviewed by the Expert Group on SNA Co-ordination.

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- The focus of economic policy in many countries has shifted away from attempts to influence directly the behaviour of a few key aggregates at the level of the economy as a whole towards structural, or desegregated, analysis designed to throw more light on the way in which the different parts of the economy interact so that more effective policies may be devised to improve the efficiency with which economies operate.

- Some long-standing economic problems such as inflation, unemployment and pollution have become much more acute in many countries leading to demands for data systems which are better adapted to the analysis of such problems. Accounting for inflation creates serious problems for both business and economic accounts, and much more attention has to be given to inflation than in the earlier versions of the System.

- New economic or financial instruments are continually being developed and their treatment in the System has to be specified. For example, the 1968 version of the System includes no reference to Value Added Tax which has now become a major tax in many countries. Similarly, new kinds of financial instruments make their appearance as a result of innovation on financial markets, often stimulated by the deregulation of such markets.

- Advances have taken place both in economic and statistical theory and applied economic and econometric analysis which change the kind of demands which users make on the System and may also call for changes in the System.

A.2.2 The need to clarify and simplify the SNA

5. There is a need to clarify and to give more precision to the treatment of many items in the System, partly as a result of the increasing complexity and sophistication of economic systems. For this reason, considerable importance is now attached to explaining the rationale behind the various definitions, classifications and conventions used in the System. There is also the need to simplify certain parts of the System where over-complicated procedures may have been introduced in the 1968 version: for example, with respect to the valuation of goods and services.

A.2.3 The need to harmonize the SNA and related statistical systems

6. The SNA is a comprehensive statistical system which also acts as the central system of economic statistics. It is desirable, therefore, that the concepts, definitions and classifications used in more specialized statistical systems, such as Balance of Payments Statistics, Financial Statistics, or Labour Force Statistics, should be the same as those used in the SNA. Different systems tend to be revised at different dates, however, so that discrepancies between specialized statistical systems and the SNA may reflect no more than differences in the timing of such revisions, rather than underlying differences of principle. Such differences have been largely eliminated in the present revision.

A.3 The scope of the revision

7. The present revision has not been dictated by major innovations in economic or accounting theories of a kind which might call for a radical reappraisal of the

foundations of the System. The emphasis in the present revision has been more on updating, clarification, simplification and harmonization.

8. Nevertheless, the present revision has provided an opportunity to review all the basic concepts and definitions of the System and the scope and coverage of its accounts. While no fundamental changes have been introduced, there have been changes in the way in which certain concepts or definitions are interpreted, in practice. For example, while the distinction between consumption and gross capital formation remains essentially unchanged, it has been decided to reclassify certain items from one category to the other. For example, structures built for defence purposes, such as roads, bridges, airfields, docks, hospitals, etc. have been traditionally treated in national accounts as consumption rather than gross capital formation. However, the economic rationale for this treatment is not clear and the present System therefore proposes that, in general, such structures should be classified in the same way as similar structures built for other purposes. There are many other examples of individual items which have been reclassified in the light of changing circumstances, or a reappraisal of their characteristics or functions, without such changes implying any modification to the underlying basic concepts or definitions themselves.

B. THE CONTENTS OF THE SYSTEM

9. The purpose of this section is to give a very brief overview of the contents and structure of the System. As already stated, the SNA consists of a logically consistent and integrated set of macro-economic accounts, tables and balance sheets which conform to a set of internationally agreed concepts, definitions, conventions, classifications and accounting rules. The different kinds of accounts, tables and balance sheets which make up the System may be summarized as follows:

B.1 The accounts, tables and balance sheets

B.1.1 The production accounts

10. The production accounts record the values of the various inputs consumed and outputs produced in the process of producing goods and services for intermediate or final uses. They also show the gross value added generated in the course of production. Production accounts may be compiled both for sectors (that is, groups of transactor, or institutional units as they are called in the System) and for industries (that is, groups of establishments as normally understood in industrial statistics). The System includes an integrated set of production accounts for industries in the form of input-output tables which trace the flows of particular kinds of goods and services from the industries from which they originate (with imports as a separately identified source of supply) through to their ultimate destinations, whether they are used for intermediate or final consumption, gross capital formation or exports. The input-output tables of the System provide a framework for checking the consistency of statistics of flows of goods and services obtained from quite different kinds of statistical sources - industrial surveys, households expenditure inquiries, investment surveys, foreign trade statistics, and so on.

B.1.2 The income accounts

11. A second set of accounts relates to incomes and the uses of incomes. These accounts show how the incomes generated in the course of production are distributed among the institutional units with claims on those incomes (households supplying labour, the owners of capital assets or land used in production). The accounts also show how incomes may be redistributed by means of taxes or other voluntary or compulsory transfers of income between different units in the economy, including government units. Finally, the income accounts show how households and governments choose to allocate their disposable incomes between expenditures on consumption and saving.

B.1.3 The capital and financial accounts

12. A third set of accounts is concerned with the accumulation of capital assets during the accounting period and the various ways in which the acquisitions of such assets may have been financed. This set of accounts includes the financial accounts of the System which show the values of the various kinds of financial assets which are acquired, and disposed of, by different sectors of the economy. In the more detailed financial accounts it is possible to trace the flows of different kinds of funds from different kinds of lenders to different kinds of borrowers, including those funds which are channelled through financial intermediaries. Thus, it is possible to carry out flows-of-funds analysis within the general framework of the System in the same way that it is possible to engage in input-output analysis.

B.1.4 The opening and closing balance sheets

13. The System also includes balance sheets which record the values of assets and liabilities held at the beginning and end of the accounting period (usually one year). The difference between the total values of the assets and the liabilities of a unit or sector at a given point of time constitutes its net worth. The changes in the values of individual assets and liabilities between the beginning and end of the period are split into three components:

- Net acquisitions of assets and liabilities resulting from transactions between different institutional units;

- Other changes in the amounts of economic assets or liabilities, such as the destruction of physical assets as a result of natural disasters or the creation of new assets through discoveries;

- Changes in the values of assets or liabilities resulting from changes in the prices of individual assets or changes in the general price level; the System distinguishes real holding gains or losses due to the change in the relative price of an asset from nominal holding gains which reflect both relative price changes and changes in the general price level.

The System is therefore able to provide a complete and detailed accounting for the change in the net worth of a unit or sector between the beginning and the end of the accounting period not only in terms of the individual types of assets or liabilities involved but also in terms of the factors responsible for the changes in the values of those assets.

B.1.5 The external, or rest of the world, account

14. Finally, the System includes an external account which brings together all the transactions between resident units and other units resident in the rest of the world. The external account does not relate to a particular kind of economic activity as such. It is a comprehensive account covering a heterogeneous collection of items such as imports and exports of goods and services, flows of income or transfers of income to and from the rest of the world, financial transactions, capital transactions, and so on.

B.2 Price and volume measurement within the System

15. The SNA also serves as a framework for the calculation of an integrated set of price and volume measures which can be used for the systematic analysis of price inflation or economic growth. The movements over time of those entries in the accounts which refer to the values of flows (or stocks) of goods and services can be directly decomposed into changes in prices and changes in quantities. However, many of the entries in the accounts refer to items such as income or financial flows, or balancing items, for which no relevant quantity units, and hence no prices, may exist. It follows that the changes in the values of such items cannot be factored into their own price and volume components. Thus, it is by no means possible to partition all the entries in the System as a whole into matching pairs of price and volume measures.

16. There is a strong demand from analysts and other users for time series of accounts at the constant prices of some base year. However, as just noted, constant price data are confined to flows of goods and services, so that only a few accounts, such as production accounts, can be recalculated in their entirety at the prices of some other period.

B.2.1 Real versus nominal values

17. The value of any payment or receipt, or amount payable or receivable, can also be expressed in terms of its purchasing power over a designated set, or basket, of goods or services, irrespectively of whether or not the payable or receivable itself relates to the provision of a good or service. The value of some item, such as the receipt of income or interest, when expressed in terms of its purchasing power is generally described as its real value, as distinct from its nominal value expressed in current money terms. Real values are calculated in practice by deflating current values by suitable prices indices. While it is possible to measure the value of any flow in real terms in this way, there may be more than one index that can be applied in any particular case. For example, if expenditure patterns, or more generally the uses of funds, are not the same for employers and employees, "real" wages may not appear the same from the point of view of an employer and his employee. Thus, there may be alternative ways of measuring the same nominal flows in real terms, and it is not possible for the System to recommend one unique method covering all the flows in the accounts which would be likely to command general acceptance by users. However, the System does make specific recommendations concerning the calculation of real income for certain selected aggregates such as real Gross Domestic Income, or real Net National Income.

B.3 Institutional units and sectors

18. With the exception of the input-output tables, the sets of accounts, tables and balance sheets described above may, in principle, be compiled at any level of aggregation - that is, for individual units, for sectors consisting of groups of units or for the economy as a whole. For this reason, the traditional name of the System, that is a System of National Accounts, is slightly misleading as a large part of the System is concerned with accounts for individual sectors and sub-sectors below the level of the national economy. As already indicated, the System actually consists of several parallel sets of macro-economic accounts for the various different and sub-sectors which make up the national economy.

19. Sectors and sub-sectors are defined as groups of institutional units: that is, economic units which are capable of engaging in economic activities and transactions with other units on their own account. As many transactions involve the exchange of ownership of a good or asset, it follows that an institutional unit must be an entity which is capable of owning assets in its own right and of incurring liabilities. In practice, three main kinds of institutional units may be identified:

- Households;
- Legal or social entities in the form of corporations or non-profit institutions created for the purpose of engaging in production whose existence is recognized at law or by society independently of the persons, or other units, which may own or control them;
- Units of central, state or local government, including social security funds.

20. The sectors of the System do not, however, correspond exactly to the three kinds of units just described. There are, in fact, four main sectors in the System. All households belong in one sector and all government units in another sector. However, corporations and, especially, non-profit institutions are distributed among more than one sector.

B.3.1 The Non-Financial Corporate Sector

21. This sector consists very largely of corporate enterprises, (i.e. companies or corporations) which are engaged on the production of goods or non-financial services. It includes non-profit institutions selling at prices which cover costs or which are created to provide services to non-financial enterprises, and also unincorporated enterprises owned by corporations, households or governments which behave like non-financial corporations and whose accounts are sufficiently articulated to enable them to be treated as if they were separate corporations (i.e. as quasi-corporations).

B.3.2 The Financial Corporate Sector

22. This sector covers all corporations whose principal activity is financial intermediation or the facilitation of financial intermediation. It includes financial quasi-corporations and non-profit institutions serving financial corporations.

B.3.3 The General Government Sector

23. This sector covers all units of central, state or local government. It includes social security funds operated by government units and also non-profit institutions majority financed and controlled by government units.

B.3.4 The Household Sector

24. This sector consists of all households plus non-profit institutions serving households. Considered as institutional units, households are not simply consumer units. They also include unincorporated enterprises owned by household members as integral parts of the households in question. It is not normally possible from a legal, economic or accounting point of view to separate an unincorporated enterprise from its owner.

B.3.5 The rest of the world

25. The four main sectors described above consist of institutional units which are resident in the country in question. A further "sector" may be identified, therefore, consisting of all institutional units resident in the rest of the world. Transactions between resident and non-resident units have to be recorded, but the other activities or transactions of non-residents are obviously ignored.

B.3.6 The national economy

26. The national economy may be viewed as if it were a "super sector" comprising all resident institutional units. As already noted, national accounts take their name from the accounts for the national economy, but the same accounts may be compiled at any level of economic aggregation.

B.3.7 The sub-sectors of the System

27. Each of the four main sectors of an economy is divided into sub-sectors and for many policy and analytic purposes it is necessary to obtain data for individual sub-sectors. A given sector may be sub-sectored in more than one way - that is, according to more than criterion. For example, the Financial Corporate Sector may be sub-sectored both by the type of financial activity in which the corporations are engaged and by whether they are controlled privately, by the Government or from abroad. The Household Sector may be sub-sectored in several different ways according to which type of socio-economic characteristic is selected for the household's reference person (type of income, level of education, location, etc.) The General Government Sector may also be sub-sectored in two different ways depending upon the way in which social security funds are treated.

B.4 The System as a whole

28. The two previous sections were intended to convey a general impression of the range of accounts, tables and balance sheets included in the System and of the various sectors and sub-sectors for which such accounts, tables and balance sheets may be compiled. In general, if there are m different accounts, tables or balance sheets and n different sectors or sub-sectors for which they may be compiled, the SNA may be viewed conceptually as an accounting system consisting of the entire set of mn accounts, tables or balance sheets. The SNA is a multi-purpose system which is designed to meet the needs of economic analysts and policy makers in as wide a

range of countries as possible, whatever their level of economic development or structural characteristics.

29. In practice, of course, individual countries may not be able, or consider it worthwhile, to compile more than a small subset, out of the entire set of tables which make up the System. Nevertheless, it is necessary to indicate the dimensions of the System as a whole as a conceptual and accounting framework designed for purposes of economic analysis and policy-making.

B.5 The links with economic theory

30. The basic concepts of the System such as production, value added, final consumption, intermediate consumption, capital formation, etc., are meant to be firmly rooted in economic theory. When economic theory clashes with the principles adopted in business accounting, the System gives priority to the former, not the latter. For this, and other reasons, national accounts are not simple aggregations of the accounts for individual businesses or other institutional units.

31. The development of national accounts was given a major stimulus by the macro-economic theories and models developed by Keynes and Timbergen in the 1930s. The second world war provided another stimulus as a result of the need to devise an economic information system suited to the conduct of macro-economic policy under wartime conditions. The System was enlarged in the following decades by incorporating within its central framework other major tools of macro-economic analysis notably input-output tables, sectoral and national balance sheets and flows-of-funds matrices. By integrating these various elements in a conceptually consistent way the SNA itself has itself evolved into a flexible, powerful, multipurpose system. Although the System is designed essentially for market economies in which prices are determined and resources allocated mainly by the interplay of market forces, it is otherwise intended to be theoretically neutral. It is not geared to any particular school of economic thought - Keynesian, neo-classical, monetarist, etc. In particular, it must be emphasized that the System is designed to accommodate the needs of both developing and developed market economies, whatever the stage of economic development they may have reached.

32. Economic theory does not always provide very clear criteria or guidelines, however, for implementation within the System. For example, the concept of income is not precisely defined in economic theory. Although the distinction between income and wealth, or between current and capital transactions, is fundamental to economic accounting it is not always easy to draw in practice. These problems are exacerbated under conditions of high inflation and, for this reason, it has been necessary to devote more attention to these problems in the present version of the System.

33. The priority accorded by the System to economic theory over conventional business accounting practices is best illustrated by the concept of cost of production. The System uses the concept of opportunity cost as distinct from historic cost which is widely (but by no means exclusively) used in business accounting. Opportunity cost implies that the cost must be reckoned in terms of alternative opportunities which are foregone at the time the good or service is used, irrespectively of the price which may have been paid for it when it was

acquired in the past. The principle of opportunity cost, which translates into "current cost" accounting in practice, influences the measurement of all the major flows of the System including gross value added and GDP, capital consumption, profits, income and saving. It has ramifications which run throughout the System. Substantial differences may be recorded for profits between national accounts and business accounts, especially during periods of high inflation, as a result of the different way in which they measure costs.

C. THE USES OF THE SNA

34. National accounts consist of a conceptually consistent and statistically integrated data base of macro-economic statistics designed for economic analysis at the level of the economy as a whole or at more desegregated levels - that is, for structural analysis of the interactions between the different sectors of the economy. As already stated, the SNA is a multipurpose system which is designed to be applicable to all market economies, whatever their industrial structures or stages of economic development. The question of whether to have two versions of the System, one for developing countries and one for more advanced economies, was specifically addressed by experts from both kinds of countries at an early stage of the revision process. It was agreed that there is need for only a single comprehensive system.

35. The basic concepts and definitions of the System depend upon economic reasoning and principles which should be universally valid and invariant to the particular economic circumstances in which they are applied. Similarly, the classifications and accounting rules are meant to be universally applicable. There is no justification, for example, for seeking to define the components of a production account - output, intermediate consumption and gross value added - differently in less developed countries than in more developed countries, or in large relatively closed economies than in small open economies, or in high inflation economies than in low inflation economies. Certain definitions, or accounting rules, specified in the System may become superfluous in certain circumstances (e.g., when there is no inflation), but it is nevertheless necessary for a general system such as the SNA to include definitions and rules covering all circumstances.

36. The fact that data priorities may vary considerably between different kinds of countries does not justify the construction of different systems with different concepts, definitions, classifications or accounting rules. Some countries may be able to calculate only a small sub-set of the accounts and tables for the national economy as a whole with little or no disaggregation into sectors, but a reduced, or simplified, set of accounts or tables does not represent an alternative system. In practice, no country is able, or considers it worthwhile, to compile all the accounts for all sectors. In any case, the System is open-ended in the sense that there is no limit, in principle, to the extent to which disaggregation by sector and sub-sectors may be carried.

37. It is not the purpose of this Manual to try to lay down priorities for data collection for countries in different economic circumstances. In practice, priorities can only be established case by case by economic analysts or policy makers familiar with the economic situation and problems of the individual countries in question. Developing countries constitute a very heterogeneous group of countries at a world level, and data priorities may vary as much between a pair of developing countries as between a developing and a developed country.

38. The SNA itself is designed to be sufficiently comprehensive that individual countries can select from within it those parts of the System which are considered to be most useful to implement in the light of their own needs and resources. Individual countries do not have to create their own systems. The SNA must be implemented in a flexible way according to the circumstances or economic structure of a country, its economic problems, objectives and priorities, and the availability of data and statistical resources.

C.1 Specific uses of the SNA

39. As already stated, the general purpose behind the SNA is to provide the conceptual and accounting framework which can be used to create a macro-economic data base suitable for analysing and evaluating the performance of an economy. The existence of such a data base is a prerequisite for informed, rational policy-making and decision-taking. Some of the more specific uses of the SNA are described in the following sections.

C.1.1 Monitoring the behavior of the economy

40. National accounts data provide information covering both different types of economic activities and the different sectors of the economy. It is possible to monitor the behaviour of many economic variables such as household consumption, government consumption, capital formation, exports, imports, wages, profits, taxes, lending, borrowing and so on. Moreover, information is provided about certain key balancing items or ratios which can only be defined and measured within an accounting framework: for example, the budget surplus or deficit, the share of income which is saved, or invested, by individual sectors of the economy or the economy as a whole, the trade balance and so on. National accounts also provide the background against which movements of short-term indicators, such as monthly indices of industrial production or of consumer or producer prices can be interpreted and evaluated. The monitoring of the behaviour of the economy may be significantly improved if at least some of the main aggregates of the System are compiled quarterly as well as annually, although the majority of the accounts, tables or balance sheets of the System cannot usually be compiled more frequently than once a year.

C.1.2 Macro-economic analysis

41. National accounts are also used to investigate the causal mechanisms at work within an economy. Such analysis usually takes the form of the estimation of the parameters of functional relationships between different economic variables by applying econometric methods to time series of data compiled within a national accounting framework. The types of the macro-economic models used for such investigations may vary according to the school of economic thought of the investigator as well as the objectives of the analysis, but the System is designed to accommodate the requirements of different economic theories or models, as already stated.

42. Advances in computer technology have made it possible for the econometric analysis of large macro-economic models to be carried out on micro-computers. Many econometric software packages have been developed for this purpose so that this kind of modelling is no longer confined to a few government departments, research institutes or universities with large mainframe computers.

It is increasingly being undertaken by private corporations or institutions with quite modest research or computing facilities.

C.1.3 Economic policy-making and decision-taking

43. Economic policy in the short term is formulated on the basis of an assessment of the current state of the economy and a view, or precise forecast, about likely future developments. Short-term forecasts are typically made using econometric models of the type just described. Over the medium or long term, economic policy has to be formulated in context of a broad economic strategy which may need to be quantified in the form of plan. Most of the elements which make up a medium or long-term economic plan consist of flows within the national accounts, and it may be impossible to draw up such plans without national accounts data. A good macro-economic model which accurately reflects the past performance of the economy may be indispensable for planning as well as forecasting.

44. Economic policy-making and decision-taking take place at all levels of government and also within large public and private corporations. Large corporations such as multi-nationals, have the capability to build their own macro-economic models tailored to their own requirements for which they need national accounts data. The long-term investment programmes of major corporations cannot be formulated without some kind of macro-economic forecasts. There are also, of course, specialist agencies who provide forecasts for individual clients in return for fees. Such agencies may require national accounts data which are very detailed.

C.1.4 International comparisons

45. The SNA is, of course, the system used for reporting national accounts data to international organizations in a standard, internationally comparable form. The resulting data are widely used for international comparisons of major aggregates, such as GDP or GDP per head, and also for comparisons of structural statistics such as ratios of investment, or government expenditures, to GDP. Such comparisons are used by economists, journalists or other analysts to evaluate the performance of one economy against that of other similar economies. They can influence judgements about the relative success of economic policies as much as developments over time within a single country. Data bases consisting of sets of national accounts for groups of countries can also be used for econometric analyses in which time-series and cross-section data are pooled to provide a broader range of observations for the estimation of functional relationships.

46. Levels of GDP per head in different countries are also used by international organizations to determine eligibility for loans, aid or other funds or to determine the terms or conditions on which such loans, aid or funds are made available. When the objective is to compare the volumes of goods or services produced or consumed per head, data in national currencies must be converted into a common currency by means of purchasing power parities and not official or market exchange rates. It has been conclusively shown that, in general, market exchange rates do not reflect the relative internal purchasing powers of different currencies. When exchange rates are used to convert GDP, or other statistics, into a common currency there is a strong and systematic tendency for the prices of goods and services in high-income countries to be higher than in low-income countries, even though all prices are expressed in the same currency units. Exchange rate

converted data cannot therefore be interpreted as measures of the relative volumes of goods and services concerned.

47. Levels of GDP, or GDP per head, in different countries are also used to determine, in whole or in part, the size of the contributions which the member countries of an international organization make to finance the operations of the organization. As contributions may have to be paid in a common currency, it may be appropriate to compare GDP or GDP per head at market exchange rates for this purpose.

48. International organizations need the SNA in order to be able to collect internationally comparable national accounts data in a standard format. They have also assumed overall responsibility for the present revision. However, SNA has not been created for the benefit of international organizations. It has become the standard, or universal, system used with little or no modification for their own national purposes by virtually all countries in the world with market economies. Thus, statistical offices and government agencies within individual countries have a strong vested interest in ensuring that the SNA meets their own analytic and policy requirements and national accounts experts from many different countries throughout the world have taken an active part in the present revision.

C.1.5 The SNA as a co-ordinating framework for statistics

49. The System serves as a co-ordinating framework for economic statistics in two different senses: first, as the conceptual framework for ensuring the consistency of the definitions and classifications used in different, but related, fields of statistics and, second, as an accounting framework for ensuring the numerical consistency of data drawn from different sources. The harmonization of concepts, definitions and classifications between the SNA and related statistical systems, such as financial statistics or balance-of-payments statistics, has been one of the driving forces behind the present revision.

D. TRANSACTIONS AND IMPUTATIONS

50. Most of the entries in the accounts consist of values recorded in monetary transactions which take place between different institutional units. In addition, imputed values are recorded for certain non-monetary transactions, including "intra-unit" transactions which are deemed to take place within, rather than between, institutional units.

51. The coverage of the System as a whole depends largely on the extent to which it is considered appropriate to impute values for non-monetary transactions. By no means all economic activities result in monetary transactions on markets, so that if the System is confined to monetary transactions, a wide range of economic activities will not be covered by the accounts. Imputing values should therefore not be interpreted as an attempt to present a theoretical, or idealized, picture of an economy by postulating activities which do not actually take place. On the contrary, the only way in which to record those economic activities which do not generate monetary transactions is to associate non-monetary transactions with them and impute values for them.

52. On the other hand, imputed values do not have the same economic significance as monetary values. An imputed sale, for example, does not generate a financial asset which is at the disposal of the recipient. Mixing imputed values with

monetary values tends to reduce the usefulness of the data for the analysis of markets in which economic agents are able to choose the way in which they dispose of their resources. The balance between monetary and imputed values in the System is therefore essentially a compromise dictated by the competing demands made on the data. Increasing the number of imputations in the System may well enhance the usefulness of certain key aggregates as indicators of welfare, but it may at the same time detract from the usefulness of the data for the analysis of market behaviour.

53. The nature of the various different kinds of entries in the accounts is explained in the following sections. It will be shown that the entries in the accounts are often not as straightforward, or transparent, as they may appear. The role of imputations in the System will also be examined. It is necessary to start by considering the nature of transactions, as these are the basic elements from which the accounts are constructed.

D.1 The nature of transactions

54. Apart from balancing items obtained residually within the accounts, the entries recorded in the accounts and tables of the System consist of the actual or imputed values of goods, other assets, services or labour which have been the objects of actual or assumed transactions. Transactions are interactions between pairs of institutional units of a kind which typically take place on markets, but they can take many different forms. In order to define a transaction it is necessary to take account of the fact that it may have either one or two components. A component to a transaction is defined as: an action undertaken by prior agreement between two institutional units in which:

- the ownership of a good, or an asset, is transferred from one unit to the other; or
- a new financial claim is created or existing claim extinguished; or
- one unit provides a service to the other; or
- one unit works for the other.

55. A transaction consists of: either

- a pair of component actions undertaken reciprocally at the same time between the same pair of institutional units; or
- a single component action without a counterpart.

56. A typical transaction consists of a pair of component actions in which, for example, unit A provides a service to B while B transfers the ownership of financial asset, such as money, to A in exchange. However, two points need to be emphasized:

(1) There is no need for one of the components to a transaction to consist of the payment of money or the transfer of financial asset; for example, the ownership of a good may be transferred in exchange for the provision of labour: any combination of component actions may occur in practice.

(2) Many transactions have only a single component so that there is no reciprocity involved - that is, no kind of "exchange" takes place; for example, one unit may simply transfer a financial asset, or provide a service, to another without receiving any counterpart. Transactions of this kind are usually described as "transfers" although they may consist of the provision of a service or labour without the ownership of a good or other asset being transferred.

57. When one of the components to a transaction consists of the transfer of a financial asset, or creation of a new financial asset, the value of both components to the transaction is determined by the monetary value of the financial asset. Otherwise, a value has to be imputed for the component, or components, to the transaction.

58. Transactions need to be clearly distinguished from the activities, such as physical processes of production or consumption, with which they may be associated. Transactions are economic events of a kind which can take place between different institutional units on markets, and the relative values which are placed on the goods, assets, services or labour involved in transactions are derived directly, or indirectly, from markets. When prices are determined freely on markets, the relative values of the goods or assets exchanged, or services or labour provided, should reflect both their relative costs of production and relative utilities, or benefits, derived by the units which acquire them. When prices are fixed by decree or regulation they may deviate significantly from both relative production costs and relative utilities.

59. In principle, two different units, or "parties", have to be involved in a transaction but an exception is made when a single institutional unit acts in two different economic capacities, such as producer and consumer. For example, a unit which has produced a good may "transfer" it to itself in its capacity as a consumer instead of offering it to other units on the market. A transaction is which the same unit acts in two different capacities is called an intra-unit transaction. Clearly, the values associated with the goods or services involved in intra-unit transactions have to be imputed.

60. Transactions may be divided into two main groups, namely monetary and non-monetary transactions. Non-monetary transactions may themselves be further divided into two subgroups: namely, actual non-monetary transactions between different institutional units (such as barter transactions or transfers in kind) and intra-unit transactions. The treatment of each of these different types of transactions is explained in the following sections.

D.2 Monetary transactions

61. A monetary transaction may have one or two components: it is defined as a transaction in which one component to the transaction consists of the payment of money by one party to the other or of the establishment of a new financial claim by one party over the other or the extinction of a financial liability owed by one party to the other. A financial claim always involves two institutional units, a creditor and a debtor: it is essentially an asset which entitles its holder to receive a payment, or payments, of money from another unit on a specified occasion, or occasions, or in specified circumstances.

62. When one component to a monetary transaction consists of the transfer of ownership of a good or other asset, or the provision of a service or labour, the

counterpart is usually the establishment of a new financial claim described as a receivable. If this claim is immediately extinguished by the simultaneous payment of money, the payment itself becomes the counterpart. However, payment is often not simultaneous and may take place at quite a different time. When payment takes place later (or possibly earlier) the settlement becomes a separate transaction in which one component consists of the extinction (or creation) of a financial claim and the other component is the payment of money. It is possible that the settlement of the claim takes place in a different accounting period from that in which the transaction which generated it occurs, while settlement may be deferred indefinitely, or the claim cancelled or repudiated.

63. It should be noted that the value of both components to a monetary transaction is the same and equal to the amount receivable or payable, whether payment is made simultaneously, in advance or in arrears. It follows that any interest charges which one or other party to a monetary transaction may incur as a result of payments made in advance or in arrears do not form part of the value of the transaction. Interest payments must be treated as separate transactions.

D.2.1 The recording of monetary transactions

64. In the case of a monetary transaction, the value of the good, asset, service or labour provided is recorded as a credit or debit in the relevant account while the corresponding receipt or payment of money, acquisition of a receivable, incurrence of a payable, or extinction of a liability, is recorded in the financial account of the same unit. As there are two parties to a monetary transaction, each monetary transaction gives rise to four entries in a complete system of accounts which includes financial accounts. For example, in the simplest case in which unit X provides a service for the benefit of unit Y:

(1) X records the value of the service provided to Y as output in its production account;

(2) X also records a receivable or the receipt of money in its financial account;

(3) Y records the value of the service which it has received from X as intermediate or final consumption, as the case may be;

(4) Y also records a payable or payment in its financial account.

65. All four entries must, of course, be identical in money terms. This method of recording has been described as quadruple entry accounting as each transaction must give rise to four entries in the System. Ordinary commercial accounts, on the other hand, are compiled for individual institutional units in isolation and therefore give rise to only two entries, e.g., (1) and (2) above or (3) and (4). This is traditionally described as double entry bookkeeping. Quadruple entry occurs when the accounts for both parties to the same transaction are included within the same comprehensive system of macro-economic, or national, accounts.

66. The times at which monetary transactions have to be recorded are when the receivables and payable are created. This method of recording is described as accrual accounting. When goods or assets are transferred, the receivables and payable are generated when the change of ownership occurs. While the principle may be clear, it is often not so easy to determine the precise moment at which the

change of ownership occurs in practice. For services and labour, the receivables and payable are created when the services are delivered, or work done, to the satisfaction of the consumer or employer.

67. When payment is actually made, the receivable of one unit is extinguished by an increase in money while the payable of the other unit is extinguished by an equal reduction in money. When payments are made at different times from the transactions which generate the receivables or payable, they should be treated as separate monetary transactions. Over an accounting period as long as a year, most receivables and payable will be extinguished by corresponding receipts and payments within the same accounting period, but by no means all will be extinguished in this way.

68. An unrequited cash transfer, such as a gift or the payment of tax, is a monetary transaction which also gives rise to four entries in the accounts. The recipient records a credit in the form of a current or capital transfer (instead of a credit resulting from the delivery of some good, asset or service) together with the receipt of money in his financial account, with converse entries in the accounts of the unit making the transfer.

D.3 Non-monetary transactions

69. A non-monetary transaction may be defined as a transaction which does not give rise to a payment or the creation or extinction of a financial claim by one party to the transaction over the other. Non-monetary transactions include: barter transactions in which the ownership of a good or asset (other than money) is transferred, or service or labour provided, by one unit to another in exchange for some other good, asset, service or labour provided in return; transfers in kind in which a good, asset (other than money), service or labour is provided without any counterpart, intra-unit transactions in which a single institutional unit acts in two different economic capacities; for example when goods or services produced by an institutional unit are retained within the same unit to be used for purposes such as consumption or capital formation.

D.3.1 Barter transactions

70. Barter transactions include remuneration in kind in which wages are paid in the form of goods, assets or services other than money. Both parties to a barter transaction record two entries in their accounts: one in respect of the good, asset, service or labour provided and the other in respect of the good, asset, service or labour received in exchange. All four entries consist of imputed values which have, of course, to be equal to each other. Thus, barter transactions, like monetary transactions, lead to quadruple entry accounting although they do not involve the financial accounts of the System.

D.3.2 Transfers in kind

71. A transfer in kind consists of the provision of a good, asset (other than money), service or labour by one institutional unit to another without any counterpart. The transaction has only a single component. Nevertheless, four entries are needed in the accounts, in the same way as for cash transfers. For example, the recipient of a good or service records its imputed value under consumption, capital formation, or other heading and at the same time must record

an imputed current or capital transfer of equal value. Similarly, the donor records two entries. Once again, four entries are recorded in total without the financial accounts being involved.

D.3.3 Intra-unit transactions

72. Intra-unit transactions are transactions which are assumed to take place within a single institutional unit. An intra-unit transaction is defined as a transaction which is deemed to occur between an institutional unit and itself when acting in two different capacities, such as the producer and the user of some good or service.

73. When an institutional unit produces a good it can choose between disposing of the good on the market and using the good itself. In the first case, the transaction would be automatically included in the accounts. The System requires that a transaction should also be assumed to take place when a unit decides to retain a good for purposes of its own final consumption or capital formation. The good should be valued at its basic price or at its costs of production if no suitable basic price is available.

74. Intra-unit transactions are not recorded, however, in respect of services produced for its own consumption, whether intermediate or final as they are automatically consumed as they are produced. When a service is produced for its own consumption, whether by an ancillary activity within an enterprise or by a household for final consumption, there is no intention (nor possibility) of offering that service to other institutional units on the market. There is therefore less justification for postulating intra-unit transactions in case of services.

75. Capital consumption and changes in stocks may also be regarded as the imputed values of intra-unit transactions. Producers are not obliged to own the capital goods which they use in production and may rent them instead. When an institutional unit purchases the capital goods it uses in production it is, therefore, acting in two different economic capacities, as an owner and as a producer respectively. Capital consumption can then be regarded as the imputed value of the capital goods belonging to the owner which the producer uses up during the accounting period. Similarly, when a producer enters or withdraws goods from stocks, the goods are effectively transferred out of, or into, the production process itself and the System treats them as if they were sold to, or purchased from, stock at the same prices that would be paid if the goods had been sold or bought on the market instead. Thus, the values of changes in stocks also represent the imputed values of intra-unit sales or purchases.

76. In contrast to other transactions, intra-unit transactions do not give rise to quadruple entry accounting as only a single unit is involved. Only two entries are recorded in the accounts in accordance with the normal rules of double-entry bookkeeping. For example, if an enterprise engages in construction for its own gross fixed capital formation, the value of the construction is recorded both under output and under gross fixed capital formation. Similarly, capital consumption is recorded both as an input into production and as a reduction in the value of a capital good in the capital account. Obviously, no entries can be recorded in the financial accounts.

D.4 Rerouting and reclassification

77. Transactions may not always be recorded in the accounts in the same way as they appear to the individual institutional units involved. Certain transactions may be "rerouted" or split up into two or more parts which are classified differently.

D.4.1 Rerouting

78. A rerouting occurs when a direct transaction between unit A and unit C is recorded as taking place indirectly through a third unit B acting as intermediary: that is, a single transaction between A and B is replaced by a transaction between A and B followed by a similar transaction between B and C. In this case, any payment which A makes to C can be considered as being "rerouted" via C.

79. The kind of situation in which this occurs is when unit B has a financial claim over unit A and unit C has an equal financial claim over B, so that if A pays C directly both claims can be cancelled simultaneously. Consider, as an example, the recording of the payment of social security contributions. Employees' social security contributions have to be paid by employees out of their wages and salaries, while employers' social security contributions are also treated in the System as constituting a charge against compensation of employees. In practice, however, neither the employees' nor the employers' contributions are usually paid out to employees, but are withheld from their wages or salaries and paid directly by employees to social security funds. This procedure is administratively convenient and efficient from the point of view of the social security funds. However, as explained above the accounts of the System record amounts payable and receivable, rather than payments and receipts. Social security contributions are actually payable out of compensation of employees and must therefore be shown as such in the accounts. Social security contributions are thus recorded strictly in accordance with the general principles governing the recording of transactions in the System in order to reflect more realistically the economic substance behind the observed payments.

80. An example of a different kind of rerouting is provided by the treatment of the retained earnings of foreign direct investment enterprises. The decision to retain some or all of the profits of a foreign direct investment enterprise within that enterprise can be regarded as a deliberate act of foreign direct investment on the part of the foreign owners. Accordingly, the retained earnings or profits are shown in the accounts as if they were first remitted to the foreign owners in proportion to their ownership shares and then reinvested by the latter in the direct investment enterprise.

81. In contrast to the various imputations described in the previous section the values recorded in the accounts for rerouting are already available, implicitly or explicitly, in the accounts of the units concerned. The values do not have to be estimated, or imputed, and rerouting should be distinguished from imputations in respect of barter transactions, transfers in kind and intra-unit transactions.

D.4.2 Reclassification

82. A reclassification occurs when a monetary transaction between two institutional units is classified differently from the way in which the units

involved may perceive it or when a transaction is decomposed into two or more elements which are classified differently from each other. An example is provided by the treatment of accident insurance premiums which are split into two components, one of which represents the purchase of a service provided by the insurance enterprise while the remainder represents a transfer to cover the risks insured.

83. Financial leasing involves a reclassification of various transactions from a legal to an economic perspective. From an economic point of view, financial leasing is a method of financing the purchase of capital equipment and it is shown in the accounts as a loan from the lessor to the lessee. In consequence, the rentals which are paid by the lessee are not recorded as purchases of services but split into two components, one of which is treated as repayment of principal and the other as a payment of interest.

84. Reclassification, like rerouting, are essentially transformations or rearrangements of certain monetary transactions which are designed to bring out the underlying economic relationships in a more realistic way. In consequence, the resulting data should be more suitable for purposes of economic analysis and policy-making.

E. EXTERNALITIES

85. Transactions are undertaken co-operatively with the prior knowledge and consent of the two parties to the transaction. This does not imply that both parties necessarily enter into a transaction voluntarily, because some transactions are imposed by force of law, such as payments of taxes or other compulsory transfers. Although individual institutional units are not free to fix the amounts of taxes they pay, there is nevertheless collective recognition and acceptance by the community of the obligation to pay taxes. Thus, payments of taxes are clearly transactions despite being compulsory.

86. Certain economic activities, however, carried out by institutional units cause changes in the condition or circumstances of other units without their consent. These are externalities: they can be regarded as unsolicited services, or disservice, delivered without the agreement of the units affected. An externality cannot be treated as if it were a special kind of transaction. It is an unco-operative action, usually with undesirable consequences, which is the antithesis of a market transaction. A typical example is the pollution by a producer of air or water which is used by other units for purposes of production or consumption. Assuming that the producer is allowed to pollute without charge or risk of being penalized, the private costs of production of the polluter will be less than the social costs to the community. In consequence, resources will be misallocated. The accounts of the polluter do not include the unrecorded costs shifted on to others, and the value added recorded in his accounts is overstated from a community viewpoint. In so far as costs are shifted on to other producers, their value added is understated from a community viewpoint. In so far as costs are shifted on to households, e.g. by obliging them to incur extra expenditures to offset the harmful effects of the pollution, they may not be any better off than with a lower level of expenditures and no pollution. It is necessary to consider, therefore, whether values should be imputed for such externalities.

87. Economic accounts have to measure economic activities such as production or consumption in the context of a particular legal and socio-economic system within which relative prices and costs are determined. Some countries, at least at certain points in their history, may choose to frame their laws in such a way that some producers are permitted to reduce their private costs by polluting with impunity. This may be done deliberately in order to promote rapid industrialization, for example. The wisdom of such a policy may be highly questionable, especially in the long run, but it does not follow that it is appropriate or analytically useful for economic accounts to try to correct for presumed institutional failures of this kind by attributing costs to producers which society does not choose to recognize. It is necessary to have a set of accounts which show the actual outcomes of the various economic activities and transactions taking place in an economy within its existing rules and laws.

88. Whereas transactions are co-operative actions which take place on markets and are influenced by market forces, externalities are unco-operative actions which take place in the absence of markets. Externalities should therefore not be treated as if they were special kinds of non-monetary transactions for which there is a prima facie case to impute values in the same way as for genuine transactions. There would be considerable technical difficulties involved in trying to associate economically meaningful values with externalities when they are intrinsically non-market phenomena. As externalities are not market transactions into which institutional units enter of their own accord, there is no mechanism to ensure that the positive or negative values attached to externalities by the various parties involved would be mutually consistent. Moreover, accounts including imputations for externalities could not be interpreted as representing equilibrium, or economically sustainable, situations. If such imputations were to be replaced by actual payments the economic behaviour of the units involved would change, perhaps considerably. For example, the whole purpose of trying to internalize some externalities by imposing taxes or other charges on the discharge of pollutants is to bring about a change in production methods to reduce pollution. A complete accounting for externalities would also be extremely complex as it is not sufficient merely to introduce imputed costs into the accounts of the producers. It would also be necessary to introduce various imputed transfers of questionable economic significance to balance the accounts. Because of these technical difficulties and the fact that externalities are not transactions anyway, no imputations are made in respect of externalities the System.

E.1 Illegal transactions and crimes

89. Illegal transactions are treated in the accounts in the same way as legal transactions, provided they are genuine transactions into which both parties enter voluntarily. The production or consumption of certain goods or services, such as narcotics, for example, may be illegal but market transactions in such goods and services have to be recorded in the accounts. If illegal expenditures on narcotics by households were to be ignored on grounds of principle, household saving would be overestimated and households presumed to acquire assets which they do not in fact acquire. Clearly, the accounts as a whole are liable to be seriously distorted if monetary transactions which in fact take place are excluded. Of course, it may be difficult, or even impossible, to obtain data about illegal transactions, but in principle they should be included in the accounts.

90. However, many illegal actions are crimes against persons or property which in no sense can be construed as transactions. For example, theft can scarcely be described as a co-operative action into which two units enter by mutual agreement. Conceptually, theft or violence is an extreme form of externality in which damage is inflicted on another institutional unit deliberately and not merely accidentally or casually. Thus, thefts of goods from households, for example, are not treated as transactions and imputed values are not recorded for them under household expenditures.

91. If thefts, or acts of violence (including war), involve significant redistributions, or destructions, of assets, it is necessary to take them into account in order to be able to reconcile the opening and closing balance sheets of the unit, sector or country concerned. One of the accounts of the System is specially reserved for changes in assets other than changes due to transactions between institutional units. This account includes changes due to criminal actions or acts of war as well as changes due to natural disasters or new discoveries. It also includes the confiscation of assets, or unilateral repudiation of debt, by a government which may be illegal from the point of view of the other party, whether a private institutional unit or another government.

F. THE AGGREGATES OF THE SYSTEM AS INDICATORS OF WELFARE

F.1 Introduction

92. As already emphasized, the SNA is a complete system of accounts, ranging from production accounts to balance sheets, which are compiled for a number of different sectors and sub-sectors as well as for the national economy. As a whole the System contains possibly thousands of different stock and flow variables which are used for a variety of different analytic and policy purposes. Nevertheless, a few key aggregates of the System, notably GDP, or GDP per head, have acquired an identity of their own and they are used as summary or global indicators of welfare, completely in isolation from the System as a whole. Movements of such aggregates are also widely used to evaluate the overall performance of an economy and hence to judge the relative success or failure of the economic policies which have been pursued. They can influence public opinion and the decisions of voters in elections.

93. Two indicators which are extensively used are changes in real GNP or real GDP, per head of population. The latter can be interpreted as measuring changes over time in the volume of goods and services produced per head by resident producers. Comparisons of productivity or living standards are also made between different countries in the same period of time. When it is intended to compare the volumes of goods or services produced per head in different countries their GDP's in national currencies must, of course, be converted into a common currency using purchasing power parities and not exchange rates.

94. It is clear from the previous sections that the range of goods and services covered by GDP is not derived axiomatically from some universally accepted set of economic principles. While it includes all goods and services sold on markets, it also includes many goods and services which are not sold in monetary transactions and for which values have to be imputed. As already explained, the extent to which such imputations are made has to be a compromise dictated by the differing requirements of users. The SNA is a multipurpose system which may not be ideally suited for any one single purpose, whether the analysis of markets, the formulation

of policy or the measurement of welfare. If the System were to be geared exclusively to one specific purpose, there is little doubt that it would lead to the emergence of alternative systems designed for other purposes, causing confusion among the vast majority of users.

95. The purpose of this section is to examine the limitations of the aggregates of the System, or indeed any aggregate measures of production or consumption, as indicators of welfare. However, for the reasons just given, it should not be concluded that the existence of such limitations necessarily constitutes grounds for changing the System.

F.2 Changes in welfare

96. Before considering the specific question of the use of GDP as an indicator of welfare, it is worth recalling briefly two basic points about the relationship between measures of output or consumption and welfare which have long been accepted in economics.

(1) The welfare of the community in a general sense depends upon many important non-economic factors such as freedom and security which economic measures do not seek to capture. Security covers a wide range of factors such as protection from disease, natural disasters or individual or collective violence.

(2) In so far as the welfare of the community depends upon economic factors such as the production of goods or services, it may depend as much on the way in which the goods or services are distributed among individual institutional units as on the total level of goods or services produced on services within the economy. A single aggregate such as GDP obviously cannot attempt to capture changes in the distribution of resources.

F.2.1 Changes in production or consumption and changes in welfare

97. In a market economy, the prices which are used to aggregate flows of goods and services should reflect both relative costs of production and their relative use values, or utilities, in the case of final consumption goods or services. It follows that aggregate measures of consumption may be expected to move in the same direction as welfare, although changes in consumption obviously cannot be directly equated with changes in welfare. Flows of goods and services should always be clearly distinguished from the welfare generated by consuming them. The distinction is clear enough at the level of an individual commodity where changes in volume are measured directly in quantity units such as kilos, quite independently of the utility or other benefit derived from the use which is made of the good or service in question. The same distinction can be made at an aggregate level notwithstanding the fact that the weights assigned to the quantity changes for individual goods and services usually reflect their relative use of values at some point of time.

98. Measures of volume changes for aggregates such as GDP, or total household consumption, are bound to move differently from changes in welfare whenever there are important changes in the non-economic factors affecting welfare. For example, suppose there is an exceptionally severe winter accompanied by an influenza epidemic. Moreover, suppose that the production and consumption of fuels, clothing, medical services, etc. rise in consequence, *ceteris paribus*. In this situation, the total volume of goods and services produced and has increased, by

assumption, even though the community may consider themselves no better off, or even worse off, than in the previous year when the weather was less severe and there was no epidemic. However, a comparison over time under the conditions assumed is evidently not a comparison between changes in output and changes in welfare, ceteris paribus. In order to see how welfare varies with output, ceteris paribus, it is necessary to consider how much better off the community is with, than without, the extra goods or services in the circumstances in which it finds itself, i.e., at a particular moment of time. Given a severe winter and an influenza epidemic, the welfare of the community is presumably considerably increased by the production of extra heating, medical services, etc. Moreover, it is tendentious to categorize the extra goods and services as "regrettable necessities" which merely satisfy certain additional needs without leaving the individuals concerned any better off than before. All goods and services are consumed by households to satisfy their needs and wants, and the fact that some needs may be increased by factors over which households have little or no control in no way diminishes the welfare or benefit derived from consuming the goods and services in question. Quite ordinary consumer goods such as food and drink could equally well be described as regrettable necessities which merely satisfy the recurrent basic needs of hunger and thirst without leaving the individuals any better off than in previous periods.

99. It may be not uncommon for a reduction in welfare caused by the occurrence of certain non-economic events to lead to an increase in real GDP as institutional units try to compensate for the loss of welfare by increased production of goods and services. For example, real GDP may increase in response to a major natural disaster, such as an earthquake or hurricane, if the production of goods and services is expanded in order to repair the damage done. In such circumstances, the increase in real GDP will tend to have a positive effect on welfare by increasing it above what it would otherwise be, despite the fact that real GDP and total welfare may be moving in opposite directions over time. For the same kind of reasons, there may be no paradox in real GDP increasing in response to a man-made disaster or the outbreak of war. Once a state of war exists, the community may prefer the production of more armaments or defence services to less, although it may much prefer that a state of war did not exist in the first place.

100. GDP is a measure of the value added generated by processes of production. Events such as natural disasters or wars are not outputs produced by productive activities and they cannot, and should not, be included in a measure such as GDP. It would be quite inappropriate to treat such events as "bad" whose costs ought somehow to be reflected in GDP when they are not marketable goods or services.

F.2.2 The production of household services

101. The imputed value of services produced for own consumption within households is not included in the accounts of the System, whereas the imputed value of goods produced for own consumption is included. The exclusion of own account services is justified on three grounds:

(1) Unlike goods, services are consumed as they are produced, so that services produced for own consumption could never have been intended for the market;

(2) The volume of such services is so large that it would be very difficult to impute an economically meaningful figure for them;

(3) Such a large imputation would tilt the balance of the System away from monetary transactions and greatly reduce the value of the System as a whole for the analysis of markets and for purposes of policy-making and decision-taking.

102. It is not suggested, however, that household services are excluded because they fall outside the production boundary in some fundamental economic sense. The production of household services can be organized on a market basis and household services are clearly produced as outputs from production processes.

103. Moreover, the production and consumption of household services clearly has a considerable impact on the welfare of households. If, therefore, the sole, or even primary purpose, of the System were simply to compile one or two aggregate measures of production and consumption to be used as indicators of total welfare there is no doubt that values should be imputed for household services produced for own consumption. However, the compilation of one or two indicators of aggregate welfare is not the sole, or primary, purpose of a complex system of accounts which includes input-output tables, income and expenditure accounts, financial accounts, flows-of-funds matrices, balance sheets, balance-of-payments statistics, and so on.

104. For special analyses of changes in aggregate welfare over time, or differences in welfare between countries, GDP as defined in the System should be augmented by imputing values for the own-account production of household services. However, such an augmented measure is not appropriate as the central measure for the System as a whole which, as already explained, is essentially a multipurpose system designed to meet the differing requirements of economic analysts and policy makers.

CHAPTER II: AN OVERVIEW OF THE SYSTEM*

Introduction

1. A system of national accounts tries to give a complete description of the economic system. It analyses the main economic functions and their interrelations. It shows how production creates or transforms goods and services and at the same time generates income, which is subsequently distributed and redistributed; then it shows how income is used for present final consumption and for accumulation which will permit raising consumption in future periods; it also depicts the financing of the economy through the use of a number of financial instruments and the role of financial intermediaries. Of course in real economic life these phenomena are taking place simultaneously; economic agents try to anticipate the different phases of the economic process and more generally the linking of various periods of time. Continuity of the economic process over time means that flows which occur in a given period and stocks that exist at a certain point of time are closely related. Thus in their description of the economic process, national accounts aim at covering the analysis of wealth, through balance-sheets, as well as that of flows. Moreover, as the economic process involves relations between the economies of different countries, external transactions are naturally dealt with by national account.

2. This brief description of the general objectives of national accounting tells us what are the kind of phenomena national accounts are interested in. However, it does not specify the contents of those phenomena, that is to say it does not indicate what is production and what is not or, more generally, what is an economic or a non-economic phenomena. Various views, conceptual as well as empirical ones, do exist as regards the answers to be given to these questions. Some are very broad, encompassing at least from a certain point of view nearly all aspects of private and public life which deal with objects (including time) that are not available in infinite quantity (as regards present and future needs) at a constant level of quality. Others are much more restrictive, limiting for example the coverage of economic phenomena to monetary or quasi-monetary transactions and the related assets and liabilities. Within a given border of the economy, different positions also exist as to the distinction between production and other phenomena, productive consumption and final consumption, final consumption and accumulation, etc. and also as to the relation between income and wealth.

3. Consequently, when presenting a system of national accounts, careful attention has to be paid to the precise description of the content of the main economic concepts used and the logic behind them, neither a solely empirical approach nor a purely theoretical one being sufficient. This is done in the relevant following chapters.

4. The System of National Accounts presented here includes a set of concepts which are fully articulated in an integrated accounting structure. These concepts are neither narrow nor all-embracing ones.

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

5. As to production for example, though the actual deliveries of goods and services to other economic units plays a fundamental role, as can be expected when dealing mostly with market economies, the production of goods and services is not restricted to products actually paid for in money. This production covers all goods and services which are actually delivered to other economic units whether paid for in money or not; it covers also goods which are retained by the producer for his own use but which could have been offered to other economic units on the market; finally it also includes services produced for own use by processes of production in which the factors of production employed are remunerated by the producer. Thus services rendered by government to other units free of charge or at a nominal price are included in production, as well as services destined to collective consumption of society. On the contrary, domestic or personal services rendered by members of a household for consumption within that same household are not included within the production boundary of the integrated system.

6. Production, as it is defined in the System, covers at the time it occurs the contribution of nature to the creation or transformation of goods and services which are cultivated by human activity, but not the creation or transformation of other natural objects. So for example, natural growth of animals in livestock industries is included in production, natural growth of wild animals is not. In the latter case, production occurs only when hunting takes place. In general the services provided by envirnomental assets are not included within the boundary of production unless these assets have been appropriated in economic activities which result in the production of goods and services in the sense of the System.

7. The coverage of the non-financial assets recorded in the balance-sheets of the System is consistent with this approach; they result mostly from production; they are in general goods and services (products) which have been accumulated (not consumed in the same period they were produced). However, natural assets are included in balance-sheets when they are appropriated and utilized for economic production activities, like land used in agriculture or underlying buildings and works, or mineral deposits. On the other hand, environmental assets in the public domain which are non-productive in the SNA sense are not included in balance-sheets.

8. Following the same approach, cultural goods are recorded in the integrated System only if they are embodied in products or in non-produced assets which are actually transacted.

9. More generally, objects which are not produced but are actually sold/purchased, like historical monuments or leases, are included in the System when they are transacted.

10. The borderline between final consumption (goods and services which are currently used for satisfying present individual or collective needs), intermediate consumption (goods and services, other than equipment, which are used in making up other goods and services) and capital formation (addition to stocks or to assets used in production) also has an important impact on the way economic functions are portrayed in the System and the main flows or stocks are defined and measured.

11. Here again, various conceptions may be encountered. According to them, the allocation of goods and services upon time and the components of production functions vary. The concept of fixed capital formation used in the System covers the traditional additions to tangible assets. Moreover, it extends to certain capital expenditures which though not resulting in tangible equipment goods,

constitute means of increasing income in the future, like expenditures on research and development, mineral exploration, computer software and artistic work. However, as human beings are not considered as economic assets in the System, the use of goods and services which directly satisfy human needs is not treated as capital formation in the integrated System, though it may increase the productive and earning abilities of individuals; thus, for example, expenditures on education and health are considered under consumption, not capital formation.

12. On the other hand, durable goods which are not included in production functions in the sense of the System, like refrigerators or washing machines held by households, or military weapons are treated as consumption goods.

13. To the extent that an expenditure on goods or services is considered capital formation instead of intermediate consumption it increases value added (the difference between output and intermediate consumption), income and saving (that part of income which is put aside for accumulation); if it is treated as capital formation instead of final consumption, it does not change value added and income but only saving. Treating an expenditure as final consumption instead of intermediate consumption increases value added and income, but not saving. And vice versa of course.

14. The main source of income and wealth is production. If production was the only source of wealth, the relation between production, income and changes in wealth would, in a closed economy, be straightforward. Value added (net, i.e., after deduction for consumption of fixed capital) in production activities would be equal to income available for consumption and net accumulation. Consequently income would be equal to the sum of consumption and changes in wealth (the assets counterpart of accumulation). In real life, apart from the influence of external transactions, a number of phenomena make the picture much more complicated. For example, some natural assets which were not produced are included within the boundary of economic activities and may be depleted, assets may be destroyed by natural catastrophes or political events like war, the value of existing assets may change in connection with the movement of prices; some economic agents eventually transfer part of wealth between each other (like inheritances). The integrated system takes care of all these phenomena. However, it does it in a way which does not change the measurement of income. In other words, income is measured as if those phenomena did not exist. Consequently the source of income in the System, apart of course from the impact of external transactions, is only production. The other sources of changes in wealth we referred to above are treated as exceptional events and recorded directly as changes in wealth (as capital gains and losses in a broad sense).

15. So while recognizing the basic economic principle of maintaining initial capital intact when defining income, the System does not treat what might be considered "exceptional incomes", positive or negative, under its concept of (current) income, but among its capital flows.

16. This brief presentation of the concepts of the System is fully developed in the relevant chapters. It is worth emphasizing at this stage that the SNA does not pretend that the concepts it uses are in any case the only right ones or always the ones which best fit the fundamental economic concepts. It is necessary in the integrated system of accounts to reach some balance between theoretical considerations and practical purposes (in terms of uses, not of data availability which in the medium and long term range may improve a lot). Additional constructs

are not only useful but also recommendable in a number of cases. Complementary or alternative measures for instance of production, income and wealth may thus be developed in order to meet additional or different requirements. Although they would not fit in the integrated System, they are not necessarily in contradiction with the theoretical principles underlying it.

PART I - THE CENTRAL FRAMEWORK

17. One can look at a System of National Accounts from two points of view: first as an integrated system of accounts for which complete consistency is required, second as a set of interrelated systems, each of them is internally fully consistent, but which may include a number of differences with the other ones though being, in a loose sense of the term, compatible with them.

18. This part of the chapter deals with the first approach, which is the traditional one to national accounting and remains the main one. It gives an overall picture of the central framework of the SNA.

19. In terms of coverage, as was stated in the introduction, the central framework describes the essential phenomena which constitute economic life: production, income, consumption, accumulation, wealth. It provides an understandable and simplified, but complete representation of this set of pehnomena and their interrelations, allowing the building up of models.

20. The central framework is an integrated system - this means that it is fully consistent, i.e., it contains no contradiction whatsoever neither conceptually nor, at least in principle, as regards figures. Its concepts, definitions, classifications, accounts and sub-accounts, accounting rules are completely coherent.

21. For example, personal services rendered to each other by members of a household are not included within the production boundary; consequently, they do not fall under income and consumption, actually they do not appear at all in the System. Or, all residential buildings (dwellings in general) are treated as fixed capital goods; as a consequence, housing services whether sold or own-consumed are included within the production boundary, and the corresponding income is originating from housing activities carried out by owners of dwelling and may not be treated as a direct return to capital. Saving includes the part of dwellings purchases which is financed out of income.

22. Nevertheless, integrated does not mean one-dimensional. In fact the central framework includes several approaches, for example stocks and flows, transactions and purposes, institutional units and establishment-type units, market and non-market output, consumption expenditure and actual consumption; all of them are mutually consistent, they do not involve any inconsistency.

23. Integration and consistency are basic requirements originating in fundamental characteristics of economic life and meaningful accounting. Those features allow the central framework to serve as a basis for the co-ordination of economic and, partly, social statistics.

24. Of course, for various reasons, data coming from the accounts or statistics provided by elementary units are not automatically fully consistent. In practice, achieving consistency in national accounts figures does need generally a very important amount of additional work.

25. In the rest of part I, when speaking of the central framework, the expression "the System" is used for the sake of simplification.

26. This part is subdivided into four sections. The first three ones are devoted to:

1. The main categories of the system;

2. The accounts and the aggregates;

3. The comprehensive (overall) tables.

Section 4 shows how to apply the central framework in a flexible way.

Section 1. Main categories of the system

27. Economic flows can be thought of from various points of view. Let us start with the following question: "Who does What?" "Who" refers to the economic agent engaged in doing something, the operator. "What" is connected with the kind of action this agent is operating. For example: An African woman is bringing water from a well.

28. In a few cases, like the one above, answering our simple question is enough to give a quite good preliminary characterization of the flow. Of course a complete description of this flow would necessitate to know at least the quantity and quality of the water, the distance, the time it needs, the recipient used, the purpose for which water is collected, the status of the person (in this case, she probably is a housekeeper).

29. In general, the question is too simple for providing even a rough economic description of a given flow. Let us take the example of somebody buying a loaf of bread. In order to characterize the flow, it is necessary to consider from whom this loaf of bread is bought (a retailer or a supermarket) and what is given in exchange (coin or note). So the starting question is transformed in "Who does What with Whom in exchange for What?" This rather simple flow involves two operators (a buyer, a seller), two main actions (a purchase, a sale), two secondary actions (a payment, a receipt) and two objects (bread, a coin or a note). Again a complete description would need to know more: at least weight, quality and price of the bread.

30. Following the same example, let us complicate the picture a bit. Before this flow occurs, the seller had a certain quantity of bread in his shop; afterwards he has less bread but more money in cash. The buyer had a certain amount of money, now he has less money but some bread (before eating it). So the flow between them has changed their initial situation. This means that in fact we cannot look at flows in isolation, we need to consider the initial and final situations before and after a flow occurs. At the two points of time, we have to ask the question "Who has What?". Of course the baker has not only bread and currency, he has also for example a house with the shop, a kneading-trough, some flour, a sight deposit in

bank, a car, etc. In other words, he has (he owns) a certain stock of objects. Same for the buyer of course. In addition to what they are in themselves, flows modify stocks. Flows and changes in stocks are intrinsically connected. We can again transform the previous question to "Who does What with Whom in exchange for What with What changes in stocks?"

31. However, we have not yet exhausted the various ways to look at our example. A step before the baker can sell bread, he has to bake it. He uses for that flour, water, electricity, a keading-trough, etc. So, the question is here "Who does What by means of What?" What he does can also be characterized in a double way: his activity (to bake) and the result of it (a product: bread).

32. Turning to the buyer we can ask ourselves "Why does he buy bread?" The purpose is quite obvious in that case generally: for eating it, as food; it could be different, however: for giving it to a beggar, as charity. We are now raising the question "Who does What for What purpose?"

33. Mixing all our questions results in a rather complex combination of simple links: "Who does What by means of What for what purpose with Whom in exchange for What with What changes in stocks?" Fortunately not all parts of this group of questions have to be answered for every flow. But with it, the central framework of the SNA is at hand!

34. Answering those questions for all flows and stocks and operators in a given economy and making adequate measures would permit, with the help of a number of fine rules of recording, to build up a national accounts framework and to derive useful figures for this economy.

35. The accounting framework has to meet some requirements. First it needs to provide a picture of the economy, but necessarily a picture which, to be intelligible, and manageable, has to be simplified. Second, it has to give a faithful representation of economic life, i.e., it needs to cover all important aspects of it in a balanced way, avoiding to neglect some or to give them not enough place and at the same time to give others too much prominence. Finally, this representation must be significant that is to say it has to help economic behavior and interrelations, and the results of economic activity. All these requirements are necessary for users and analysts, they are complementary but to a certain extent contradictory. At least the right balance between them is not easy to achieve. Too much simplification can lose or neglect important aspects of economic life. To be too close to reality as it appears can overbuden the picture and reduce meaningfulness. To be too sophisticated can lower intelligibility and mislead some users, etc.

36. The SNA retains a number of categories which constitute in a sense the skeleton of the system and permit to answer various aspects of the questions raised above:

- institutional unit (who?)

- transactions (what?)

- assets and liabilities (stocks)

- activities, establishments, products (other aspects of who and what?)

- purposes (what for?)
- accounting rules (how to record?)

They are presented in turn.

1.1 Institutional units

37. As the system is a complete one, covering all flows and stocks, the fundamental units it retains are the economic units which are capable of owning assets (real assets or claims) and incurring liabilities on their own behalf. They can be engaged in the full range of transactions. Those transactions make their economic claims (ownership of real assets or holding of claims) vary. These units are called institutional units. In addition to this aspect of centre of legal responsibility, institutional units are centres of decision for all aspects of economic life. Of course, some institutional units can control each other and thus autonomy of decision is not total in a number of cases and may vary over time, for example inside a family of legal entities. Legally independent holding of assets and liabilities and autonomous behavior do not always coincide. For a national accounts point of view, prominence is given to the first aspect which provides a better way to organize collection of accounts and statistics and a useful basis for analysis, even it is in some cases only a second best.

38. The institutional units are grouped together to form institutional sectors, on the basis of their principal functions:

- non-financial corporations: institutional units which are principally engaged in the production of market goods and non-financial services
- financial corporations: institutional units which are principally engaged in financial intermediation or in auxiliary financial activities
- general government: institutional units which, beside their political responsibilities and their role of economic regulation, produce principally non-market services for individual or collective consumption and redistribute national income and wealth
- households: this sector covers all physical persons in the economy; the institutional unit in the household sector is made up of one individual or a group of individuals; according to the criteria given for defining the institutional unit, mainly the independence of ownership of assets and liabilities, the household of the owner of an unincorporated enterprise includes in general this enterprise, which is not considered an institutional unit (except under certain conditions). The principal function of households as consumers is consumption, as entrepreneurs, it is the production of market goods and non-financial services. In addition, the sector includes non-profit institutions serving households which are legal entities principally engaged in the production of non-market services for households whose voluntary contributions are the main resources.

39. Inside these four sectors, a number of sub-sectors (with various levels) are distinguished according to a hierarchic classification (see Chapter ...). Of

course a sub-sector is made of whole institutional units and each institutional unit belongs to only one sub-sector.

40. It is worth mentioning at the very beginning that, in addition to more traditional breakdowns of sectors, the distinction between public, national private and foreign controlled for corporations and between various socio-economic groups for households is given much emphasis in the System in order to be nearer to policy concerns.

1.2 Delimitation of the national economy and the rest of the world

41. The national economy is defined in terms of institutional units. It consists of all the institutional units which are resident in the economic territory of the country. The economic territory of a country, though consisting essentally of the geographic territory of this country, does not coincide totally with it; some additions and subtractions are made (see Chapter ...). The concept of residence used in the System is not based on nationality or legal criteria. An institutional unit is said to be a resident unit when it has a centre of economic interest, that is to say if it engages durably (one year or more being taken as a practical guideline) in economic activities on this territory. The institutional sectors referred to above are groups of resident units.

42. Resident units engage in transactions with non-resident units (that is to say units which are resident of other economies). These transactions are the external transactions of the economy. They are grouped in the accounts of the Rest of the World. Strictly speaking, the Rest of the World is the account of transactions occurring between resident and non-resident units. However, the Rest of the World may also be looked at as the whole of non-resident units. So the Rest of the World play, in the accounting structure of the System, a role similar to the one of an institutional sector, though non-resident units are considered here in so far as they are engaged in transactions with resident institutional units. Consequently, as far as coding of classifications is concerned, a specific item for the Rest of the World is included at the end of the classification of sectors.

1.3 Transactions and their grouping

43. Transactions are economic flows corresponding to actions of institutional units. They may be considered from two points of view. First, according to their concrete nature, they relate to various aspects of economic life: to consume, to incur taxes, to receive a social security benefit, to acquire a number of shares, etc. ... Second, abstractly, they convey a certain amount of economic claims, which have a value. From this latter viewpoint, transactions cover the creation, transfer, changes in concrete nature and extinction of economic claims.

44. The concept of transaction is used in the system with a very wide meaning. It is not restricted, as often in current language, to monetary flows and a matching flow of goods and services. On the contrary, it covers all flows whether monetary or non-monetary and whether connected with goods and services, distribution and redistribution of income, financial instruments or other non-produced assets.

45. Those flows can be actual, observable flows or they can be built up or estimated for analytical purposes. Certain flows may be observed both concretely and in value terms. This is the case for monetary transactions occurring between two institutional units, like a purchase/sale of a good or the payment of a tax.

Other flows are observable only concretely ("physically" in a very broad sense), though they take place actually between two units, like barter of goods and services or education services consumed by pupils or students and provided free of charge by government; a value in money terms has to be attributed, imputed to them. Both types of transactions referred to above may be bilateral (it exists a "quid pro quo" in the sense that a flow is linked to a counterpart flow in the apposite direction, like in a barter transaction or a sale/purchase transaction) or unilateral (there is no, at least direct, "quid pro quo", like in a social assistance benefit in cash or the free provision of education services), but they involve two institutional units. Another kind of flow concerns only one institutional unit. They may be physically observable, like output, own-account consumption or capital formation, destructions by natural catastrophes. A value has to be attributed to them (this may be rather easy in certain cases, when output is mostly sold or costs of own account capital formation are actually paid for by the producer). Intra-units flows may be also non-observable as such. They are then constructed as accounting entries for the sake of measuring correctly economic performances. This is the case for the consumption of fixed capital or the revaluation of assets and liabilities. Certain inter-units flows, like the reinvested earnings on direct foreign investment, are also accounting entries created for analytical purposes. Finally, some actually observable monetary transactions are not recorded as they may be observed in practice, because they are of a composite nature (nominal interest, gross insurance premiums) or their juridical nature does not correspond to their economic one (financial leasing). Consequently, for national accounts purposes, they are split up into various components and/or their qualification is modified.

46. In modern market economies, most transactions are monetary and take place between different institutional units. They constitute the fundamental basis for valuing flows in national accounts. The relative importance of imputations (this term refers to both attributing a money value to an actual flow and to introducing purely accounting entries) varies according to the type of economy under consideration and the objectives pursued by the accounting system. It is generally greater for less developed economies than for developed ones, in which, however, it is not neglectable.

47. Elementary transactions are innumerable. They are grouped in a relatively small number of categories according to their nature.

48. The system includes four main categories of transactions, each of them being subdivided according to a hierarchic classification. Transactions in goods and services describe the origin (domestic output or imports) and use (intermediate or final consumption, capital formation, exports) of goods and services. Goods and services are tangible or intangible objects which can be used for satisfying individual or collective needs (see Chapter ...). By hypothesis goods and services are always in the system a result of production, either domestically or abroad, in the current period or in a previous one. The term products is used as a synonym for goods and services.

49. Distributive transactions consist of transactions by which the income generated by production is distributed to factors of production and government and also transactions involving the redistribution of income and wealth (taxes on income and wealth and other transfers). Factor incomes are due to providers of labour or capital, other distributive transactions are transfers. The System draws

a distinction between current capital transfers. The latter are deemed to redistributing saving or wealth, not as reducing or increasing income (see Chapter ...).

50. Transactions in financial instruments refer to net acquisition of financial assets or net incurrence of liabilities for each financial instrument. Such changes occur as counterparts of most of non-financial transactions, except when the latter do not involve a payment (barter, own-account consumption for example). They also occur as transactions involving various financial instruments themselves. Transactions on contingent assets and liabilities are not considered transactions in the SNA. (See Chapter ...).

51. Other accumulation transactions are all transactions, not taken into account before, which change the quantity or value of assets and liabilities. They cover transactions on non-produced assets, like discovery or depletion of sub-soil resources or purchases of land, as soon as they cross or have crossed previously the border of economic activity. They also cover the effects of non-economic phenomena like natural catastrophes and political events (wars for example). Finally they include the holding gains or losses due to changes in prices, and some minor items (see Chapter ...).

52. Some words of explanation are necessary on the kinds of transactions types the System uses. The SNA being largely based on the recording of monetary transactions, one can be surprised for example not to see sales and purchases appearing as types of transactions except in a few particular cases. In fact sales and purchases of new goods and services or shares or bonds, or sales and purchases of second-hand goods nowhere appear in the main classifications of transactions, whatever the level we look at.

53. The explanation is that in order to be simple and significant the System is a bit distant in a number of cases from directly observable transactions.

54. First, it often retains categories which are more elaborated with a direct economic meaning, like for example, consumption expenditure or gross fixed capital formation, both concepts covering purchases of goods and services, either new or second-hand, and flows in kind, less sales of second-hand goods.

55. Second, as the previous example already showed, the System also often retains categories which are compacted, i.e., are the result of the combination of a number of various kinds of elementary transactions. It is always the case for transactions in goods and services, even if to a lesser degree for imports and exports. Changes in stocks for example are the difference between entries in and withdrawals from stocks. The same happens for transactions in financial instruments. All transactions in an instrument held as asset (or respectively as liability) are grouped under the heading of this instrument. The item "loans" for example covers issuance of new loans, conversions, redemption or cancellation of existing loans. Distributive transactions however, are generally closer to direct observable types of transactions.

56. Finally it also happens that a type of transaction in the SNA covers only a part of an actual transaction. This is the case for some distributive transactions like interest and net casualty insurance premiums.

57. Due to the basic role of monetary transactions in the valuation of flows and the never the less significant place of transactions for which at least the value or sometimes also the whole flow has to be imputed, it is often claimed to show separately fully observed flows and imputations in a broad sense, as well as more generally transactions in cash and in kind.

58. As introducing systematically the relevant distinctions directly in the classification of transactions would overburden the picture, the System tries to meet the various requirements by introducing more flexibility. It distinguishes the main classification of transactions and a complementary one.

59. The main classification of transactions is designed to be systematically used in the accounts and tables of the central framework and cross classified with institutional sector, industry and product, purpose classifications. It is a hierarchic classification allowing for various levels of presentation. This classification has the characteristics which have been described in the previous paragraphs. It is economically elaborated, compacted, sometimes a bit abstract. A small number of imputations appear separately, when necessary for understanding the accounts, even at a rather high level of aggregation: for example non-market output is distinguished from market output, imputed social contributions from actual ones, reinvested earnings on direct foreign investment from dividends and of course consumption of fixed capital is introduced.

60. The purpose of the complementary classification of transactions is to be available for additional presentation and analysis. The intention is to use it not systematically but on demand for more detailed analysis of the accounts of certain sectors or industries or certain transactions and for helping users in better understanding the results.

61. The complementary classification of transactions first shows explicitly a number of transactions in kind, like own-account final consumption or barter transactions or wages and salaries in kind. Second, it shows the various components of or the indirect way to approach compacted flows like output and intermediate consumption. Finally, it includes transactions, like nominal interest or gross insurance premiums that are starting points for deriving transactions of the system.

62. As stressed upon later on in this chapter and in chapter XIII, countries are invited to use these two classifications in a flexible way. Particularly they may like to split some headings of their main classification, in order to show separately specific transactions which are analytically significant for users of their national accounts figures. The complementary classification of transactions as presented in the SNA, will provide in such a case a useful reference. Moreover, it has to be pointed out that the complementary classification of transactions presented in the SNA does not aim to limit the extension of national complementary classifications: the latter may indeed have a broader coverage, according to specific needs.

63. The classification of main transactions are shown in an appendix as annexes to this chapter. The elements of complementary classification are introduced in the relevant chapters.

1.4 Assets and liabilities

64. Assets and liabilities are the components of national and sector balance-sheets at any point of time. Here we look at stocks of assets and liabilities held by each unit or sector or the economy as a whole, not at transactions. However, stocks are connected with transactions (flows): they result from the accumulation of transactions (in the broad sense the SNA gives to this concept) and they are also subject to transactions. Generally recorded at one point in time when inventories are taken, they result in fact from a continuum of entries and withdrawals with some changes, in physical substance or in value, occurring during the time a given asset or liability is held. Thus static and dynamics are closely related in the nature of stocks, even if the time spent in stocks varies considerably from one type of asset or liability to another one or between individual components of assets and liabilities.

65. Assets which are not counterparts of liabilities generally serve two purposes. They are objects usable as such and at the same time stores of value, of economic claims. Of course financial assets are directly stores of value, even if financial instruments may fulfil also other functions.

66. The classification of assets distinguishes produced and non-produced, tangible and intangible, non-financial and financial assets.

67. The coverage of assets is limited to those assets which are used in economic activity according to the SNA concept and/or are subject to ownership rights. For example most consumer durable, human capital, culture as such, natural resources not used in economic activity are outside the scope of assets in the System (see Chap. ...).

1.5 Complementary categories for the detailed study of production and products

68. Institutional units, for example corporations, may produce various types of goods and services. These goods and services result from processes of production which may differ as regards materials and supplies consumed, kind of equipment and labour employed and techniques used. In other words, they may come from various economic activities.

69. In order to study production in detail and production functions it is necessary to refer to more homogeneous units. The ideal solution would be to delineate units which would be at the same time totally homogeneous, that is to say engaged in only one economic activity, and observable. In practice a trade-off has to be made at a certain step in analysis because it is not always feasible to distinguish, inside multi-activities units, units of production engaged in a single activity and for which the necessary data are available. For that reason the SNA accepts for the detailed study of production a unit which, in addition to its principal activity, an homogeneous one, may cover also secondary activities of different types. As it is also necessary to give a picture of the distribution of production in space, this unit has also to be in a single location or nearby sites. This unit is the establishment.

70. Taking into consideration the fundamental role played by the market in most modern economies, the SNA distinguishes, as an essential feature of its structure, between establishments which are market producers and those which are non-market

producers. Market producers/establishments produce goods and services for sale in the market at a price that is normally designed to cover the costs of production. Non-market producers/establishments supply the goods and services they produce without charge or at nominal prices that are far below their average costs of production. Market producers/establishments engaged, as their principal activity, in the same kind of economic activity, constitute a market industry. Similarly non-market producers/establishments constitute non-market industries.

71. Market and non-market industries follow the same classification of industries, the International Standard Industrial Classification of all economic activities, or ISIC (Rev. 3).

72. Let us recall the hierarchic relation between institutional units and establishments. An institutional unit contains a whole number of producing units, of establishments (one or more), either market or non-market. A producing unit, an establishment, belongs to one and only one institutional unit.

73. For more refined analysis of the production process, use is also made of an analytical unit of production, not always observable, which is the homogeneous unit of production defined as covering no secondary activities, except by-products. These units are grouped in homogeneous industries.

74. Goods and services, also called products, are the result of production. They are exchanged and used for various purposes: as inputs in the production of other goods and services, as consumption or investment. Here again the SNA makes a basic distinction between market and non-market goods and services/products, allowing in principle any kind of goods or services to be of one or another type (even if of course some are always market or non-market). In order to study in detail transactions on goods and services and to get the balances between their resources and uses the Central Product Classification is used.

75. In order to facilitate the integration of accounts and statistics, classifications of activities and classifications of products are interrelated.

1.6 Purposes

76. The concept of purpose relates to the type of need a transaction aims to satisfy or the kind of objective it pursues. Transactions are previously analysed in the System according to their nature. Then, for certain sectors or kind of transactions, they are analysed from the expenditure side, by purpose.

77. In the case of households, consumption expenditure and/or actual consumption are traditionally classified by purpose in household surveys and national accounts. Such analysis may cover other parts of household accounts, like fixed capital formation, interest paid and some transfers. All expenditure by private non-profit institutions serving households is broken down by purpose.

78. For government, the analysis by purpose applies to all transactions except most instances to transactions in financial claims and interest on the public debt.

79. Expenditures by market producers raise a specific question. Normally the analysis by purpose of market goods and services has to be made from the users' side. A market producer is normally not directly concerned by the purpose for

which a purchase is made, even if he knows why in most cases at least for marketing considerations. The problem is different: in some instances producers may occur costs (intermediate, labour, capital) which are indirect components of market prices but serve a purpose that is different from the one the market good and service itself is destined to satisfy, for example environment protection, employees training etc. The System provides for additional analysis in this connection.

80. In any analysis by purpose, the transaction or group of transactions is the statistical unit for applying a functional classification to outlays.

1.7 Rules of accounting

81. We now have at our disposal the main categories with which it is possible to draw the representation of the economy. In fact, institutional units, transactions, assets and liabilities would be enough to build up a complete accounting framework. But as we saw before the System, in order to pay more attention to certain aspects of economic activity or to avoid unbalancing their representation, introduces other important categories such as activities, establishments, products, purposes.

82. However, before it is possible to actually construct the accounts, accounting rules are to be defined.

1.7.1 Terminology for the two sides of the accounts and balance-sheets

83. The SNA utilizes the term resources for the side of the current accounts where transactions which add to the amount of economic claims of a unit or a sector appear. Resources are by convention put on the right side. The term uses, on the left side, relates to transactions which reduce the amount of economic claims of a unit or sector. Balance-sheets are presented with liabilities and net worth (the difference between assets and liabilities) on the right side and assets on the left one. Comparing two successive balance-sheets, one gets changes in liabilities and net worth and changes in assets. Accumulation accounts and balance-sheets being fully integrated the right side of accumulation accounts is called changes in liabilities and net worth and their left side is called changes in assets.

84. In the case of transactions in financial instruments, the changes in liabilities are often referred to as incurrence of liabilities and the changes in assets as acquisition of assets.

1.7.2 Double entry/quadruple entry

85. For a given unit or sector, national accounting is based like business accounting on the principle of double entry. Each flow has to be recorded twice, once as a resource (or a change in liabilities or net worth) and once as a use (or a change in assets). The total of uses/changes in assets and the total of resources have to be equal, thus permitting a check of the consistency of the accounts. Of course all transactions belonging to the four categories (see above: Transactions and their grouping) used in the System have to be recorded if one wants to take advantage of the double entry principle (or if some are not recorded, for instance among other accumulation transactions, they have to be surely discarded everywhere).

86. The implications of the double entry principle are not always easy to grasp. There is no problem in a number of cases: a purchase on credit of a consumer good by a household will appear as a use under consumption and an incurrence of liability under loans for example. If the good is paid cash, the picture is a bit less simple: the counterpart of a use under consumption is now a negative acquisition of assets under currency for instance. Some transactions are more complicated. Output is a resource in the account of a producer, the counterpart in its uses is a positive change in stocks. This counterpart is not what appears on the left side of the production account, because each transaction has to be recorded twice according to double entry bookkeeping. Afterwards when output is sold (sales do not appear as such in the main classification of the System), there will be a negative change in stocks, a negative acquisition of assets balanced by a positive acquisition of assets for instance under currency and deposits.

87. The difficulty to see in some cases how double entry intervenes is due to the fact that the categories of transactions in the System are, as explained before, in many instances compacted. However, right understanding of national accounts requires knowledge of all these implications.

88. Considering now national accounts as a whole, with all units and all sectors, one can see that in principle national accounts are for most transactions, every time they concern two economic agents/institutional units, based on a principle of quadruple entry. Each transaction of this type is normally recorded twice by the two transactor involved. For example, a social benefit in cash paid by a government unit to a household is recorded in the accounts of government as a use under the relevant type of transfers and a negative acquisition of assets under currency and deposits; in the accounts of the household sector, it is recorded as a resource under transfers and an acquisition of assets under currency and deposits.

89. It is worth noting that the principle of quadruple entry does not imply that the relations between sectors are directly shown in the accounts. It is sufficient to record correctly the four entries involved. For example, if interest payable are correctly recorded as uses, and their counterpart as incurrence of liabilities or negative in the accounts acquisition of financial assets of all debtor sectors and interest receivable are correctly recorded as resources, and their counterpart as acquisition of financial assets in the accounts of all credit sectors or the quadruple entry, principle is net and full consistency achieved as regard these transactions.

90. These principles are of course the conceptual basis of national accounts consistency. Unfortunately national accounting is far from having the possibility to take advantage of this in practice. The accounts of the nation are not kept as those of a business unit or government, by actually recording all flows incurring in a given period. They rely on accounts of various units that are not always consistent or even available and on statistics of various kinds, figures are incomplete, etc. However, the quadruple entry principle remains an essential requirement.

1.7.3 Time of recording transactions

91. One implication of the quadruple entry principle is that transactions have to be recorded at the same point of time in the various accounts in question for both transactor.

92. The general principle in national accounting is that transactions have to be recorded when claims and obligations arise, are transformed or cancelled, that is to say on an accrual basis. This principle applies to any kind of transactions. Of course in case of transactions internal to one unit, claims/obligations are not against a third party. However, they always relate to changes in the stock of economic claims this unit owns. Transactions in goods and services, though involving physical movements, also imply creation and changes in claims/obligations like any other transaction. Generally speaking all transactions, apart from their own nature, can always be looked at as dealing with economic claims.

93. One has thus to distinguish carefully a transaction and the corresponding cash movement which takes place, except for transactions in kind, at a certain point of time. Even when a transaction (a purchase/sale of a good for example) and the payment/receipt are simultaneous, the two aspects do exist. The purchaser is incurring a liability, the seller acquiring a claim as a counterpart of the delivery of the good. Then liability and claim are cancelled by the payment. In most cases, there is a delay between the actual transaction and the corresponding payment/receipt. National accounts record in principle actual transactions, not on a cash basis, but on an accrual basis. Conceptually they follow the same principle as business accounting, something which government accounts not always do.

94. If the principle is clear, its implementation is far from simple. The time a claim/liability arises is not always unambiguously determined. For example, as regards taxes on income, is it when the income is earned or when the taxes are assessed or due to be paid? So conventions are in many cases necessary. The System follows either the due to be paid basis, for instance as regards taxes on income and capital, or the full accrual basis (for example taxes on products are recorded in the period in which the corresponding transactions on goods and services occur).

95. Institutional units do not always apply the same conventions. When they do, differences in actual recording may occur for practical reasons like delays in communication. Consequently transactions may be recorded at different times by the transactor involved, sometimes not in the same accounting period. Discrepancies exist which national accounts afterwards have to eliminate. The precise rules followed by the System are presented in the relevant chapters (or in a specific chapter ?).

1.7.4 Valuation

96. Following again the quadruple entry principle, a transaction must be recorded at the same value all through the accounts of both sectors involved. The same principle applies to assets and liabilities. It means that a financial asset and its liability counterpart have to be recorded for the same amount in the creditor and the debitor accounts. Consequently provisions for bad or doubtful debts are not taken into account, because apart from the uncertainty about the actual magnitude of the future loss, counterpart entries do not appear in the accounts of other transactor. Specific problems arise for applying the identity of valuation principle to shares (treated as assets and liabilities in the SNA not as rights of ownership) and in general to securities the market price of which does not necessarily measure the exact value of the liability of the issuing sector (see Chapter ...).

97. Transactions are valued at *the actual price agreed upon by transactor*. Market prices are indeed the basic reference for valuation in the accounts. In the absence of monetary transactions, valuation is made according to costs incurred (wages in kind, non-market services produced by government) or by reference to market prices for analogous goods or services (imputed rent of owner-occupied dwellings).

98. *Assets and liabilities* are valued *at current prices* at the time the balance-sheet is established, not *at their original prices*. Theoretically national accounts are based on the assumption that assets and liabilities are continuously revalued at current prices, even if estimates are in fact made only periodically. Values at current prices are obtained in two ways: either by reference to actual market prices, for instance for bonds, or by accumulating and revaluing transactions over time, as is done generally for fixed assets. In some cases, market prices are close to the (discounted) present value of future income expected from a given asset. This is the case for a number of financial assets, due to the way financial markets are operating. In other cases, current prices of transactions are not so strictly related to this discounted present value, for example when only a small part of a type of assets has been actually transacted (land for example). Current values resulting from revaluation of the accumulated values of transactions can also depart from the theoretically best valuation process.

99. According to the general principle of valuation, internal transactions on assets, like entries in stocks, withdrawals from stocks, intermediate consumption and consumption of fixed capital, are valued at current prices at the time these transactions occur, not at original prices.

100. *Transactions on products* (goods and services) are valued in the System in various ways according to various analytical purposes. However, for sake of integrating the System, the same methods are followed in the *institutional sector accounts and the central supply and use of goods and services tables* (see sects. 2 and 3). In order to meet various situations, an option is left open as to the *valuation of output*, which may be either at basic or producers' prices. The distinction is related to the treatment of taxes on products. *Basic prices* are prices before (net) taxes on products are added. They exclude all taxes on products and include subsidies on products. *Producers' prices* include, in addition to basic prices, (net) taxes on products other than Value Added Type Taxes. This means that, concretely, three valuations of output may be encountered: at basic prices, at producers' prices in the absence of value added type taxes and at producers' prices in the presence of value added type taxes. 1/

101. In the same sets of accounts and tables, *all transactions on the uses of goods and services* (like final consumption, intermediate consumption, capital formation)

1/ The way producers' prices are defined means that value added type taxes are never considered in the System costs against production but levies on uses; producers are deemed to collect, on behalf of government, taxes which are not part of their own turnover. The use of basic prices might be interpreted as extending this scheme to all taxes on products. Business accounting practices may vary from one country to another or within a given country. The trend seems toward increasing recording of taxes on products separately from turnover.

are valued at purchases' prices (market prices). Purchases' prices are defined as including all taxes on products (net of subsidies on products) except the deductible part of value added type taxes. Purchasers' prices are the actual costs to the users.

102. The various ways output is measured, intermediate consumption being in all cases at purchasers' prices (market prices), draw consequences on the content of value added by a producer or a sector or an industry. In the set of accounts and tables under consideration, value added at basic value includes, besides factor incomes, only taxes on production other than taxes on products; value added at producers' value includes in addition net taxes on products other than Value Added Type Taxes (which means all net taxes on products 2/ when Value Added Type Taxes don't exist). A complementary definition of value added is at factor incomes (sum of compensation of employees and operating surplus), which exclude taxes on production of any kind.

103. Value added, conceptually, should not include consumption of fixed capital. However, for practical reasons, the System keeps, at the same time, value added as just defined and a concept of value added before deduction of consumption of fixed capital. The latter is called gross value added. In order to avoid confusion proper value added is called value added (net).

104. When looking at the National economy as a whole, the part of taxes on products (net of subsidies) not included in value added is added to the sum of value added of all producers (either institutional sectors or industries) in order to get the main aggregate of product and income generated in the economy.

105. Other methods of valuation may be used in other versions of the supply and use tables and symmetric input-output tables. Especially, valuation at basic prices may be followed for output, when not already done in the central supply and use tables, and for uses of goods and services detailed by product (in this case an additional row for net taxes on products on uses is introduced in order to get, for each type of uses, the total at purchasers'/market prices. Another alternative valuation of uses by product excludes trade and transport margins, the latter being then directly channelled to the users.

106. Until now only current prices have been touched upon. The System, however, also puts great emphasis on calculation at constant prices; that is, using the System of prices which prevailed in a past period. Flows at constant prices are obtained by inflating past values or deflating current values. They take into account the changes in the specific prices of the item in question. Flows at constant prices are said to be in volume. A flow may also be inflated or deflated by taking into account the change in the general price level (id est in the purchasing power of the currency). In that case, it is said to be in real terms (at constant purchasing power). Flows which cannot be calculated at constant prices, because they are not flows of goods and services or do not result from the difference between two flows of goods and services, may be shown in real terms. For example, the System provides for the calculation of income in real terms.

2/ However taxes on imports are never channelled through the accounts of producers.

107. Inter-spatial comparisons raise similar but even more complex problems than inter-temporal comparisons. Additional difficulty is due mainly to the fact that many countries are involved. Through great many elementary calculations at prices constant-in space, purchasing power parities (ratios between prices prevailing in various countries) are calculated and indicators of relations in volume between various groups of items and national aggregates for different countries are obtained.

1.7.5 Consolidation

108. The term consolidation may cover various accounting procedures.

109. In general, it refers to the elimination, both from uses and resources, of transactions which occur between units when the latter are grouped in order to constitute an industry or a sub-sector or a sector of the national economy (or when enterprises are grouped into families of enterprises or groups for complementary analyses). Consolidation may also apply to financial assets and liabilities.

110. At the level of an institutional unit, only transactions with other institutional units normally appear. Flows internal to an institutional unit are not considered transactions in the System, except when it is necessary to make them appear in order to give meaningful measures of economic phenomena. For example, consumption of fixed capital is a recorded transaction, or changes in stocks linked to own output, or own account capital formation or own account consumption. As it is shown in the next section of this chapter, those transactions and their counterparts are generally recorded in different accounts of a given institutional unit. However, conventionally, deliveries for intermediate consumption between various technical units of an establishment are consolidated with the corresponding output, but deliveries for intermediate consumption between establishments belonging to the same institutional units are not. Consequently output, once measured at the establishment level, is not modified whatever the level of aggregation is.

111. Up to the level of institutional units, the SNA in principle does not consolidate flows between units comprising sub-sectors or sectors. However, consolidated accounts are built up for complementary presentations and analyses. This may be done usefully for the government sector as a whole, thus showing the net relation between government and the rest of the economy. Even in that case, transactions appearing on different accounts are never consolidated in order not to change balancing items. Similar consolidation processes may illustrate the net relation between public and private sectors or between a key sector and the rest of the economy.

112. Accounts for the national economy as a whole give rise to the external transactions account or rest of the world account when totally consolidated, or to simplified accounts of the economy when main significant aggregates related to creation, allocation and use of economic claims are also kept.

113. Consolidation may also refer to various kinds of netting between uses and resources, changes in assets and changes in liabilities relative to one unit or group of units. Normally, in such a situation uses/changes in assets are not consolidated against resources changes in liabilities, in order not to reduce the information content of the System. However, consolidation understood that way may occur in two cases. First, as a consequence of the way transactions, as explained

before, are compacted. It is so for transactions in financial instruments where all transactions related to an instrument are represented only by the net acquisition or net incurrence of the given instrument. It is also so for example for changes in stocks. [3] Second, netting may also be used in some presentations, e.g., taxes on products net of subsidies.

A detailed treatment of consolidation is given in Chapter ...

Section 2. Accounts

114. With the tools introduced in section 1, all flows and stocks may be recorded. However, in order to get significant results, the recording of transactions has to be structured according to their place in the economic circuit. This is done in the accounts of the System. An account records transactions wich are connected to some specific aspect of economic life (for instance production). For a unit or group of units, such a set of transactions does not usually balance. The total amounts recorded respectively as receivable and payable generally differ. A balancing item is introduced consequently. Balancing items are meaningful measures of economic preformances. When summed up for the whole economy they constitute significant aggregates. This section is devoted to the design of the accounts (accounts in the SNA include also balance sheets).

115. It deals successively with:

- the full sequence of accounts for institutional sectors and their balancing items;
- the shortened sequence of accounts for industries;
- the accounts for transactions;
- the Rest of the World accounts;
- the aggregates.

2.1 The full sequence of accounts for institutional sectors and their balancing items

116. Let us start with the full sequence of accounts for institutional sectors. Before presenting the accounts, some preliminary remarks are useful. The purpose of this section is to explain the accounting structure of the System in general, not to exhibit the precise content of the accounts for each specific sector. The accounting structure is uniform throughout the System. It aplies to all institutional units, sub-sectors, sectors and the national economy. However, some accounts may not be relevant for certain sectors. Similarly, not all transactions are relevant for each sector and, when they are, they may constitute resources for some sectors and uses for others. The precise content of the accounts for each sector is presented in the following chapters, dealing in detail with various types of accounts.

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[3] In both examples, the consolidation occurs between gross acquisition of assets/incurrence of liabilities and reduction of assets/liabilities, respectively.

117. Another remark relates to the way the classification of transactions is used when presenting the general structure of the accounts. In section 1 of this chapter, only the main categories of transactions have been shown, not the detailed ones which are displayed in the relevant chapters of the Book. However, in order to make the accounts understandable, it is necessary to put here a number of transactions. This is done by using the actual classification of transactions in the System at the level of detail sufficient for good understanding of the accounts. However, definitions of these transactions are not given at this stage, if not absolutely necessary.

118. It is also worth noting that balancing items are always shown twofold, gross and net, the consumption of fixed capital being also indicated. Conceptually, net balancing items are much more meaningful. However, gross concepts, specifically gross aggregates, are widely used and gross accounts are often estimated more easily, accurately and promptly than the net ones. In order to accommodate both solutions and to ease the integrated presentation of the accounts and aggregates, a double presentation of balancing items is made.

119. Finally, it has to be said that the sequence of accounts show the accounting structure of the System; it is not necessarily a format for publishing the results.

120. The accounts are grouped into three categories: current accounts, accumulation accounts, balance sheets.

121. Current accounts deal with production, income and use of income. Accumulation accounts cover changes in assets and liabilities and changes in net worth (the difference for any institutional unit or group of units between its assets and liabilities. Balance-sheets present stock of assets and liabilities and net worth.

Current accounts: production, distribution of income, use of income

Accumulation accounts: changes in assets and liabilities and changes in net worth

Balance-sheets: stocks of assets and liabilities and net worth

122. Accumulation accounts show all changes which occur between two balance-sheets. Even when one does not actually establish balance-sheets, a good understanding of the relations between accumulation accounts and potential balance-sheets is necessary for a correct elaboration of the accumulation accounts themselves.

123. The relation between current accounts and accumulation accounts is a bit more complex. All current transactions make net worth vary either positively (resources) or negatively (uses). The recording of a transaction as a current resource means an increase in the amount of economic claims a unit or a sector has at its disposal; conversely, a transaction recorded as a current use means a decrease in this amount of economic claims. The difference between all current uses and all current resources (saving) represents, for a given period, the change in net worth resulting from current transactions. However, the latter are not the only source of changes in net worth. These points are further elaborated below.

124. These three broad kinds of accounts are looked at in turn.

A. Current accounts

125. Current accounts deal with production, income and use of income. Their last balancing item is saving which is, in the SNA context, that part of income originating in production, domestically or abroad, which is not used for final consumption. Each account starts with the recording, as resources, of the balancing item of the previous one.

126. Production, distribution, of income and use of income are considered successively.

Production account

127. The production account (account I) is designed in order to put emphasis on value added as one of the main balancing items in the System. Consequently, it does not cover all transactions linked with the production process, but only the concrete result of production (output) and the using up of goods and services when producing this output (intermediate consumption). Intermediate consumption does not cover the progressive wear and tear of equipment goods. The latter is recorded as a separate transaction (consumption of fixed capital) making the difference between gross and net balancing items.

Production account   value added

128. Thus the production account shows only output as resources and intermediate consumption as uses. Its balancing item is value added, which is measured both gross and net. As explained above (see valuation), three types of valuation of output may be used according to the choice made between basic prices and producers' prices and, in the latter case, the existence or absence of value added type taxes. Consequently, the extent to which taxes on products (net) are included in value added differs.

129. All institutional sectors have a production account. However, in the production account of institutional sectors, output and intermediate consumption are shown only globally, not broken down by products.

uses   resources

I. PRODUCTION ACCOUNT

I. Production account

uses	resources
Intermediate consumption	Output (1)
Value added, gross	
Consumption of fixed capital	
VALUE ADDED, NET	

(1) Output can be valued at (a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

Distribution of income accounts

130. The process of distribution and redistribution of income is so important that it is worth distinguishing various steps and to depict them separately in different accounts. As long as all kinds of distributive current transactions included in the System are actually measured, increasing the number of accounts adds very little to the work already done. In turn, it permits introducing balancing items that are meaningful concepts of income.

131. The distribution of income is decomposed into three main steps: primary distribution, secondary distribution and redistribution in kind. The first refers to the distribution of value added to factors of labour and capital and to government (through taxes on production and imports net of subsidies). It measures primary income. The second covers redistribution of income through essentially transfers in cash. It measures disposable income. The last one relates to further redistribution through transactions in kind. It measures adjusted disposable income.

Distribution of income

Primary distribution of income --- primary income

Secondary distribution of income --- disposable income

Redistribution of income in kind --- adjusted disposable income

Primary distribution of income accounts (accounts II.1)

132. The primary distribution of income account shows how gross value added is distributed to factors of labour and capital, government and eventually, in both directions, the Rest of the World. Its balancing item is primary income (gross and net).

133. Actually account II.1 is subdivided between two sub-accounts, in order to measure, in addition, operating surplus/mixed income, a balancing item which is important both for institutional sectors and industries.

134. The generation of income account (II.1.1) records distributive transactions which are directly linked to the process of production. The resources consist of value added; its uses include compensation of employees, and taxes on production and imports, minus subsidies, as far as they are included in the valuation of output (see footnote 3 to account II.1.1). The balancing item is operating surplus/mixed income (gross and net). 4/

135. The appropriation of primary income account (II.1.2) shows the remaining part of the primary distribution of income. It records property income on both sides, compensation of employees and taxes on production and imports (net) as resources

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4/ This balancing item is called mixed income in the case of the household sector, except for the operating surplus of owner-occupied dwellings, because it covers return both to labour of self-employed and capital.

II DISTRIBUTION AND USE OF INCOME ACCOUNTS

II.1. Primary distribution of income accounts

II.1.1 Generation of income account

Compensation of employees	Value added, gross
Taxes on production and imports (3)	Consumption of fixed capital
Subsidies (-) (3)	VALUE ADDED, NET
Operating surplus,gross/Mixed income,gross	
Consumption of fixed capital	
OPERATING SURPLUS, NET/MIXED INCOME, NET	

(3) According to the different valuation of output, the item "Taxes on production and imports", which never covers "taxes on imports" for the institutional sectors, includes
- (a) other taxes linked to production
- (b) taxes on products, except taxes on imports
  other taxes linked to production
- (c) taxes on products, except VAT and taxes on imports
  other taxes linked to production

The item "subsidies" includes
- (a) other subsidies linked to production
- (b) and (c) subsidies on products, except subsidies on imports
  other subsidies linked to production

II.1.2 Appropriation of primary income account

Property income	Operating surplus,gross/Mixed income,gross
Primary income, gross	Consumption of fixed capital
Consumption of fixed capital	OPERATING SURPLUS, NET/MIXED INCOME, NET
PRIMARY INCOME, NET	Property income
	Compensation of employees
	Taxes on production and imports
	Subsidies (-)

respectively for households and government. Of course, transactions of this kind may also appear in the Rest of the World account. Account II.1.2 has operating surplus/mixed income as resources and primary income (gross and net) as a balancing item. Thus primary income covers operating surplus, mixed income net property income received, compensation of employees and taxes on production and imports (net).

Secondary distribution of income account (account II.2)

136. The secondary distribution of income account covers redistribution of income through transactions in cash. Transfers in kind with the Rest of the World, normally of a marginal magnitude, are however, included in this account, because the distinction between transfers in cash and in kind does not seem very important in the context of external transactions. There may exist also an element in kind in unfunded employee social benefits paid by employers. For similar reasons, it is also treated as transactions in cash.

137. This account records as resources, in addition to primary income, current taxes on income, wealth, etc., and other current transfers except social transfers in kind. On the use side, the same types of transfers are also recorded. Of course, those transfers are resources for some sectors and uses for others and their precise content varies from one sector to another.

138. It is worth explaining a bit here the way social contributions are recorded in the System. They first appear as a component of compensation of employees in the use side of the generation of income account (II.1.1.) of employers and the resource side of appropriation of primary income account (II.1.2.) of households (adjusted of course for external flows in compensation of employees). Then they are recorded as uses in the secondary distribution of income account (II.2.) of households, possibly of the Rest of the World too, and as resources of the sectors managing social protection schemes (essentially government). All employers' social contributions follow this route even if in practice the money flows go directly to, in general, social security. This way of recording is often called "rerouting".

139. The balancing item of account II.2 is disposable income (gross or net). This is the income which can be used for final consumption expenditure and saving. In the System, only government, households and private non-profit institutions serving households have final consumption expenditure. Final consumption expenditure of one of these sectors covers final consumption for which this sector is the ultimate bearer of the expense. Disposable income is mainly in cash. However it involves also an in-kind component. The latter include compensation of employees in kind, transfers in kind from the Rest of the World and non-government sectors, own account consumption, own account fixed capital formation and that part of output for sale which has not yet been sold and is recorded under changes in stocks. For non-financial and financial corporations disposable income is income after tax non-distributed to owners of equity.

II.2. Secondary distribution of income account

Current taxes on income, wealth etc.	Primary income, gross
Other current transfers	Consumption of fixed capital
Social contributions	PRIMARY INCOME, NET
Social benefits in cash	
Miscellaneous current,transfers	Current taxes on income, wealth etc.
	Other current transfers
Disposable income, gross	Social contributions
Consumption of fixed capital	Social benefits in cash
DISPOSABLE INCOME, NET	Miscellaneous current transfers

Redistribution of income in kind account (account II.3)

140. The redistribution of income in kind account makes two steps more in the description of the redistribution process. First it records social benefits in kind, which include proper actual social benefits in kind, when the benefiting household has not to make the expense at all, and benefits for which the household makes the initial outlay and is later on reimbursed. Second it records the value of individualized non-market services, like education, not included in social benefits in kind. All these transactions are included under the heading social transfers in kind in the classification of distributive transactions.

141. Account II.3 records as resources disposable income and, for households, social transfers in kind. Then, on the left side, social transfers in kind appear as uses for government and private non-profit institutions serving households. The balancing item is adjusted disposable income (gross and net). 5/ For the reason indicated above, this account intervenes only for government, households and private non-profit institutions serving households.

142. The purpose of this account is fourfold. First, it aims at giving a clearer picture of the role of government. Second, it delivers a more complete measure of household income. Third, it facilitates international comparisons and comparisons over time when economic and social arrangements differ or change. Fourth, it gives a more complete view of the redistribution process between sub-sectors or other groupings of households. Redistribution of income in kind is a tertiary distribution of income.

5/ Adjusted disposable income is conceptually very near to the item "total income" used for a long time in the work on SNA/MPS links.

II.3. Redistribution of income in kind account

Social transfers in kind (govt., npi's)	----------------
	Disposable income, gross
----------------	----------------
Adjusted disposable income, gross	Consumption of fixed capital
----------------	
Consumption of fixed capital	DISPOSABLE INCOME, NET
ADJUSTED DISPOSABLE INCOME, NET	
	Social transfers in kind (households)

A specific analysis of primary distribution of income for sectors that are important market producers

143. In the case of corporations, operating surplus measures the total amount arising from direct productive activities which is available for renumerating both own and borrowed capital and paying current taxes on income, wealth etc.

144. However, many corporations receive property income (interest, dividends, etc.) which is also available for this purpose. In turn, they have to pay a return to providers of borrowed capital. Consequently, operating surplus is not equivalent to the concept of current profit familiar in business accounting. In order to provide another balancing item, nearer to the latter, the account II 1-2 (appropriation of primary income) may be further subdivided.

145. An entrepreneurial income account (account II.1.2.1) is introduced. Its resources are operating surplus and property income received. On the other side, property income except distributed income of corporate enterprises is recorded. The balancing item is entrepreneurial income (gross and net). Entrepreneurial income of corporations (financial or non-financial) is the surplus available essentially for distributing income to owners of the corporations, mainly in the form of dividends attributed to shareholders, paying current taxes on income, wealth, etc. to Government and retaining own saving.

146. In the case of households that are owners of unincorporated enterprises not classified in the sectors of corporations, the calculation of entrepreneurial income is also useful. Due to the unity of wealth and balance sheet, in that case the simplifying assumption can be made that no property income received by those households is connected to the enterprise activity. Thus entrepreneurial income in that context equals operating surplus of owner-occupied dwellings plus mixed income less property income due to be paid in connection with the business (interests on loans to producing activity and land rent, if any).

147. Then, an appropriation of other primary income account (II.1.2.2.) may be built up. For non-financial and financial corporations it includes as resources only entrepreneurial income, and as users distributed income of corporate enterprises. The balancing item in that case, primary income, is equivalent to undistributed profits before tax. For the household sector, the coverage of transactions recorded in account II.1.2.2. is of course broader. It includes as resources compensation of employees and property income and as uses property income (when not due to be paid in connection with business activity).

148. For the government sector, this breakdown of account II.2 is not of special interest. Marker producers represent normally a small part of this sector and their entrepreneurial income would be presumably equivalent or very near to operating surplus.

II.1.2.1 Entrepreneurial income account

Property income (connected with market activities)	----------------
	Operating surplus,gross/Mixed income,gross
Interest	----------------
	Consumption of fixed capital
Imputed property income to insurance policy holders	OPERATING SURPLUS, NET/MIXED INCOME, NET
Land rent and royalties	
	Property income (connected with market activities)

Entrepreneurial income, gross	

Consumption of fixed capital	
ENTREPRENEURIAL INCOME, NET	

II.1.2.2 Appropriation of other primary income account

Property income (connected with market activities)	----------------
	Entrepreneurial income, gross
Distributed income of corporate enterprises	----------------
	Consumption of fixed capital
Property income (not connected with market activities)	ENTREPRENEURIAL INCOME, NET
	Compensation of employees

Primary income, gross	
----------------	Property income (not connected with market activities)
Consumption of fixed capital	
PRIMARY INCOME, NET	Taxes on production and imports
	Subsidies (-)

Use of income account (account II-4)

149. The use of income account (II.4) shows, for those sectors which have some final consumption that is households and General Government, how disposable income or adjured disposable income is allocated between final consumption and saving. This is done in two variants of accounts II.4.

150. The use of disposable income account (II.4.1.) records disposable income as resources and final consumption expenditure as uses.

151. Final consumption expenditure covers transactions on final consumption of goods and services for which a sector is the ultimate bearer of the expense. In the case of government and non-profit institutions serving households, as non-market services are produced in their production account, final consumption expenditure relates to the value of output of non-market services, not to intermediate purchases of goods and services or compensation of employees which are recorded, as uses, in the production account. However it covers in addition goods and services that are purchased by government or non-profit institutions for ulterior transfer, without transformation, to households.

II.4 Use of income account

II.4.1 Use of disposable income account

Final consumption expenditure	Disposable income, gross
	Consumption of fixed capital
	DISPOSABLE INCOME, NET
Saving, gross	
Consumption of fixed capital	
SAVING, NET	

152. The *use of adjusted disposable account* (II.4.2) records adjusted disposable income as resources and actual final consumption as uses. Actual final consumption of households covers goods and services which are effectively available for individual consumption use by households, whoever the ultimate bearer of the expense is, government, private non-profit institutions or households themselves. Consequently, actual final consumption of government and private non-profit institutions refers only to collective consumption.

153. At the national economy level, disposable income and adjusted disposable income are equal, final consumption expenditure and actual final consumption too. They differ only when considering the relevant sectors.

154. The balancing item of the use of income account, in its two variants, is saving (gross and net). The figures for saving are the same in account II.4.1 and II.4.2 as income in the resources side and consumption on the uses side differ by the same amount. Saving ends the sub-sequence of current accounts.

Use of income

Use of disposable income .... final consumption expenditure

saving

Use of adjusted disposable income .... actual consumption expenditure

income

II.4.2 Use of adjusted disposable income account

Actual final consumption	Adjusted disposable income, gross
	Consumption of fixed capital
	ADJUSTED DISPOSABLE INCOME, NET
Saving, gross	
Consumption of fixed capital	
SAVING, NET	

B. Accumulation accounts

155. The present accounting system being fully integrated, accumulation accounts cover all changes in assets, liabilities and net worth (the difference for any sector between its assets and liabilities).

156. Because accumulation accounts show changes in assets, liabilities and net worth, they follow a presentation similar to balance sheets themselves. Balance sheets are conventionally presented with assets on the left side, liabilities and net worth on the right side. Consistently, in the accumulation accounts, all changes in assets, either positive or negative are recorded on the left side, all changes in liabilities, either positive or negative, and changes in net worth, either positive or negative, are recorded on the right side.

157. So the left side as already said (Rules of accounting) is called "Changes in assets" and the right side "changes in liabilities and net worth".

158. Saving being the balancing items of all current transactions/accounts is of course the starting element of accumulation accounts.

159. Accumulation accounts are structured in a way which permits to distinguish various types of changes in assets, liabilities and net worth.

160. A first group of accounts cover transactions which would correspond to all changes in assets/liabilities and net worth if saving and voluntary transfers of wealth were the only sources of changes in net worth. A second group of accounts relate to changes in assets, liabilities and net worth due to other factors.

161. The first group of accumulation accounts contains the capital account and the financial account. These two accounts are distinguished in order to show a balancing item which is useful for economic analysis, that is net lending/net borrowing.

Capital account (account III.1)

162. The capital account records transactions linked to investment in non-financial assets and capital transfers involving the redistribution of wealth. The right side includes saving, net and capital transfers receivable and capital transfers payable (with a minus sign) in order to arrive at that part of changes in net worth which is due to saving and net capital transfers. Account III.1 includes among uses the various types of investment in non-financial assets. Consumption of fixed capital being a negative change in fixed assets is recorded, with a negative sign, on the left side of the account. Entering on this side gross fixed capital formation (+) and consumption of fixed capital (-) is equivalent to entering net fixed capital formation. The balancing item either is net lending (+) which measures the net amount a unit or a sector has finally available to finance, directly or indirectly, other units or sectors or it is net borrowing (-) which corresponds to the amount a unit or a sector has finally been obliged to borrow from others.

III. ACCUMULATION ACCOUNTS

III.1 Capital account

changes in assets	changes in liabilities and net worth
Gross fixed capital formation	SAVING, NET
Changes in stocks	Capital transfers receivable(+)
Consumption of fixed capital (-)	Capital transfers payable (-)
Net purchases of land and other non-prod. assets	
NET LENDING(+)/NET BORROWING(-)	
	+++++++++++++ CHANGES IN NET WORTH DUE TO SAVING & NET CAPITAL TRANSFERS

Financial account (account III.2)

163. The financial account records transactions in financial instruments. These transactions in the System refer for each financial instrument to net acquisition of financial assets shown on the use side or net incurrence of liabilities shown on the resource side. The balancing item is again net lending (+) or net borrowing (-), which appears this time on the right side of the account.

164. Net lending or net borrowing is measured in principle by the same amounts whatever the account in which it appears. In practice to get full balance is one of the most difficult targets of national accounts.

III.2 Financial account

Gold and SDR's	Gold and SDR's
Currency and deposits	Currency and deposits
Securities other than shares	Securities other than shares
Loans	Loans
Shares and other equity	Shares and other equity
Insurance technical reserves	Insurance technical reserves
Other accounts receivable	Other accounts payable
	NET LENDING(+)/NET BORROWING(-)

165. The second group of accumulation accounts (III.3 Other changes in assets accounts) cover changes in assets, liabilities and net worth which are due to other factors than the ordinary accumulation transactions recorded in the previous group of accounts. Such factors are for example discoveries or depletion of sub-soil resources, destruction by political events, like war, or natural catastrophes, like earthquakes; they may also be linked with changes in the level and structure of prices. In the latter case, only the value of assets and liabilities is modified, not their volume. Factors like discoveries of sub-soil resources or earthquakes actually change the volume of assets, in the SNA sense.

166. Thus the second group of accumulation accounts is subdivided between an account for other changes in volume of assets and an account for revaluation.

Other changes in volume of assets accounts (account III.3.1)

167. The other changes in volume of assets account records those exceptional events which make the volume of assets and liabilities vary, not only their value. In addition to the kind of events referred to above, like the consequences of war or earthquakes, this account also includes some adjustment elements like changes in classification and structure which may have or not an influence on net worth (see chap.). The balancing item changes in net worth due to other changes in volume of assets is recorded on the right side.

Revaluation account (account III.3.2)

168. The revaluation account records holding gains or losses due to changes in prices. It shows first nominal holding gains or losses due to changes in actual prices. This item records the full change of value due to the change in specific prices of the various assets or liabilities since the beginning of the accounting period or the time of entry and the time of exit or the end of the accounting period.

169. Nominal gains (+) losses (-) on assets appear on the left side of the account III.3.2. Nominal gains/losses on financial liabilities are recorded on the right side. For a given unit or group of units, a positive revaluation of its financial liabilities is equivalent to a nominal holding loss, a negative revaluation of its liabilities is equivalent to a nominal holding gain. The balancing item of the account is changes in net worth due to changes in actual prices.

170. Then, the revaluation account is subdivided between two sub-accounts. The first sub-account (account III.3.2.1) shows the revaluation in proportion to general price level which is obtained by applying, during the same periods of time, an index of the change in general price level to the initial value of all assets or liabilities, even to those that are fixed in monetary terms. This operation is called neutral revaluation because all assets and liabilities are revalued in exactly the same proportion. The balancing item of account III.3.2.1 is called changes in net worth due to neutral revaluation.

171. The second sub-account (account III.3.2.2) shows the difference between the nominal holding gains/losses (account III.3.2) and the neutral revaluation (account III.3.2.1). This difference is called real holding gains/losses. For instance, considering the left side (changes in assets) of this sub-account for a given unit or group of units, if the effect of changes in actual prices is higher than the neutral revaluation, there is a real holding gain, due to the fact that in average the actual prices of its assets have increased more (or decreased less) than the general price level. In other words, the relative prices of its assets have increased. Vice-versa a decrease in relative prices of its assets leads to a real holding loss. The balancing item of the account III.3.2.2 is the total of real holding gains or losses, which is called changes in real net worth due to changes in relative prices.

172. Each of the three types of holding gains or losses are subdivided according to the main groups of assets and liabilities, a decomposition which is necessary even in a simplified accounting presentation.

III.3 Other changes in assets accounts

III.3.1. Other changes in volume of assets account

Economic appearance of non-produced assets	CHANGES IN NET WORTH DUE TO OTHER CHANGES IN VOLUME OF ASSETS
Economic disappearance of non-produced assets (-)	
Destruction of assets by non-insurable risks (-)	
Uncompensated seizures(+/-)	
Adjustment of the residual value of assets (+/-)	
Changes in classification and structure	

III.3.2. Revaluation account

Nominal holding gains(+)/losses(-) (due to changes in actual prices)	Nominal holding gains(-)/losses(+) (due to changes in actual prices)
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	CHANGES IN NET WORTH DUE TO CHANGES IN ACTUAL PRICES
Financial assets	

III.3.2.1. Neutral revaluation

Neutral revaluation (in proportion to general price level)	Neutral revaluation (in proportion to general price level)
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	CHANGES IN NET WORTH DUE TO NEUTRAL REVALUATION
Financial assets	

III.3.2.2. Real holding gains/losses

Real holding gains(+)/losses(-) (due to changes in relative prices)	Real holding gains(-)/losses(+) (due to changes in relative prices)
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	CHANGES IN REAL NET WORTH DUE TO CHANGES IN RELATIVE PRICES
Financial assets	

C. Balance sheets

173. The opening and closing balance sheets (IV.1 and IV.3) display assets on the left side, liabilities and net worth on the right side. Assets and liabilities, as previously explained, are valued at the prices of the date a balance sheet is established. Net worth, the difference between assets and liabilities, is the balancing-item of balance sheets. It is equivalent to the present value of the stock of economic claims a unit or a sector holds. Of course in more detailed presentations of balance sheets, the various types of assets and liabilities have to be shown using the classification of assets and liabilities at various levels.

174. For each element or group of assets and liabilities, changes between the opening and closing balance sheets result from the transactions which are recorded in the accumulation accounts, including the changes in classification of assets and liabilities. Changes in net worth are equal to changes in assets less changes in liabilities.

175. The account IV.2 Changes in balance sheets recapitulates the total changes in assets and liabilities and the changes in net worth by main sources: saving and net capital transfers, other changes in volume of assets and changes in actual prices subdivided between neutral revaluation and real holding gains and losses. Saving and net capital transfers, other changes in volume of assets and real holding gains/losses contribute to changes in real net worth; neutral revaluation convert real net worth to nominal general purchasing power as of the end of the accounting period. Its effect is neutral as to the allocation of real wealth between units or sectors.

176. Account IV.2 shows the relation in the SNA between saving (net) and changes in net worth. Saving (net) is equal to changes in net worth less net capital transfers received, less other changes in volume of assets, less revaluation. Considering only changes in real net worth, saving (net) is equal to changes in real net worth less net capital transfers received, less other changes in volume of assets, less real holding gains or losses due to changes in relative prices. This relation between saving and changes in real net worth implies that the relation between disposable income or adjusted disposable income and changes in real net worth differs in a way from the direct Hick's concept of income (see chap. ...).

177. Saving being a source of changes in real net worth, it follows naturally that all current transactions, of which saving is the balancing item, make real net worth vary either positively (resources) or negatively (uses). This illustrates the definition of net worth given above as a stock of (abstract) economic claims. Most transactions in assets and liabilities do not change the magnitude of net worth, but only its concrete composition. However, counterparts of transactions in assets and liabilities recorded in account III.3.1 and 2 do it, as well as capital transfers.

178. In general, both current accumulation and transactions deal with creation, transmission and extinction of economic claims.

IV. BALANCE SHEETS

assets liabilities

IV.1. Opening balance sheet

Non-financial assets	Liabilities
Produced assets	NET WORTH
Non-produced assets	
Financial assets	

IV.2. Changes in balance sheet

Total changes in assets	Total changes in liabilities
Non-financial assets	
Produced assets	
Non-produced assets	CHANGES IN NET WORTH, TOTAL
Financial assets	SAVING & NET CAPITAL TRANSFERS
	OTHER CHANGES IN VOLUME OF ASSETS
	CHANGES IN ACTUAL PRICES neutral revaluation real holding gains/losses

IV.3. Closing balance sheet

Non-financial assets	Liabilities
Produced assets	NET WORTH
Non-produced assets	

2.2 The shortened sequence of accounts for industries

179. For market and non-market industries (groups of establishments), only the production account I and the generation of income account (II.1.1) are compiled.

180. By convention, all output of market producers/establishments is treated as market output, including goods and services produced for own-account consumption or fixed capital formation. Non-market producers/establishments may have in addition to their principal output, which is non-market, secondary output sold at market prices.

181. The content of accounts I. and II.1.1, when established for various industries, the output and intermediate consumption of which are broken down by products, form part of the input-output framework of the System.

182. In addition the System also provides figures on gross fixed capital formation and the corresponding assets by industry of ownership and industry of use.

uses	resources

I. PRODUCTION ACCOUNT

I. Production account

uses	resources
Intermediate consumption	Output (1)
Value added, gross	
Consumption of fixed capital	
VALUE ADDED, NET	

II.1.1 Generation of income account

uses	resources
Compensation of employees	Value added, gross
Taxes on production and imports (2)	Consumption of fixed capital
Subsidies (-) (2)	VALUE ADDED, NET
Operating surplus,gross/Mixed income,gross	
Consumption of fixed capital	
OPERATING SURPLUS, NET/MIXED INCOME, NET	

(1) Output can be valued at (a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

(2) According to the different valuation of output, the item "Taxes on production and imports", which never covers "taxes on imports" for the institutional sectors, includes
(a) other taxes linked to production
(b) taxes on products, except taxes on imports
other taxes linked to production
other taxes linked to production
(c) taxes on products, except VAT and taxes on imports
other taxes linked to production
The item "subsidies" includes
(a) other subsidies linked to production
(b) and (c) subsidies on products, except subsidies on imports
other subsidies linked to production

183. As an establishment always belongs to an institutional unit it is possible to link the producing activities of industries and sectors. This is done in the System for value added and its components which are cross-classified by institutional sector and by industry (see chap. ...).

2.3 Transactions accounts

184. A transactions account shows, for a given transaction or group of transactions, for example interest, resources and uses for each sector (or industry if relevant) engaged in this type of transaction, but not direct relations between transacting sectors. Thus relations of the type what?/from whom? and what?/to whom? are recorded, not relations of the type what?/from whom?/to whom? Transactions accounts are basically in the System dummy accounts or screen accounts. Totals of resources and totals of uses balance by definition (practical difficulties of course might be encountered) and there is no balancing item. A transactions account is thus a way for recapitulating what may be found for a given transaction in the accounts of the various sectors/industries. The general structure of a transactions account is shown in the following table, using property income as an example.

185. In order to make this structure systematically workable, the classification of transactions, referred to above, has been built up according to their nature without specific reference to sector of origin or sector of destination.

186. In the case of transactions on goods and services, (products), the transactions account is particularly developed. Goods and services account (account 0) shows, for the economy as a whole or for groups of products, the total resources (output and imports) and uses of goods and services (intermediate consumption, final consumption, changes in stocks, gross fixed capital formation and exports). Taxes on products (net of subsidies) are also included on the resource side of the accounts. The coverage of this item varies according to the way output is valued (see above "Valuation" and below the footnotes to the goods and services account). The origin of that part (eventually the total) of taxes on products (net of subsidies) which is not included in the value of output is the national economy as such, not specific sectors or industries.

187. The goods and services account can show alternatively final consumption expenditure or actual final consumption. Of course, for the economy as a whole, the data for the two items are identical. However they differ for the sectors involved, when the goods and services account is cross-classified with the classification of institutional sectors in order to show the resources and uses according to the institutional sector of origin or use.

188. An important feature of the goods and services account is that it is balanced globally (there is a balance between all uses and all resources), not for each kind of transaction.

189. When looking at goods and services account by type of products, output and intermediate consumption are allocated by industry of origin or use, while other transactions are kept by sector (see later on supply and use of tables).

190. Due to the extremely important role it plays in the System, the goods and services account receives a special coding (account 0). This is not necessary for other transactions accounts which are identified, if necessary by the code of the relevant transaction.

191. Another particularity of the goods and services account is that uses are shown on the right side and resources on the left side in order to reflect transactions on the opposite side as compared to institutional sector accounts.

Account for property income

USES							RESOURCES					
REST OF THE WORLD	HOUSE-HOLDS	GENERAL GOVERN-MENT	FINAN-CIAL CORPO-RATIONS	NON-FINAN-CIAL CORPO-RATIONS	TOTAL	TRANSACTIONS	TOTAL	NON-FINAN-CIAL CORPO-RATIONS	FINAN-CIAL CORPO-RATIONS	GENERAL GOVERN-MENT	HOUSE-HOLDS	REST OF THE WORLD
						Interest						
						Distributed income of corporate enterprises						
						Dividends						
						Dividends (corporations)						
						Withdrawals from income of quasi-corporations						
						Reinvested earnings on direct foreign investment						
						Imputed property income to insurance policy holders						
						Land rent and royalties						
						Property income, total						

0. GOODS AND SERVICES ACCOUNT

resources	uses
Output (1)	Intermediate consumption
Imports of goods and services	Final consumpt. expenditure /actual final consumption
Taxes on products (2)	Gross capital formation
Subsidies (-) (2)	Gross fixed capital formation
	Changes in stocks
	Exports of goods and services

(1) Output can be valued at (a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT
(2) According to the different valuation of output, the item "taxes on products" will include:
in case (a) all taxes on products
(b) taxes on imports
(c) taxes on imports and VAT
According to the different valuation of output, the item "subsidies on products" will include:
in case (a) all subsidies on products
(b) and (c) subsidies on imports

192. Accounts for other transactions simply follow the general model (see page ...). In a number of cases, like taxes, social contributions, social benefits, the nature of the recorded transaction identifies easily the "from whom to whom?" relation or a good approximation of it. In other cases, all sectors may have resources and uses and the interrelations are not at all shown. In the most important cases, like interest, dividends, transactions in financial instruments, it is very useful, in addition to the dummy account procedure, to follow a "from whom to whom?" approach, for practical and analytical purposes.

2.4 The Rest of the World account (external transactions account)

193. The Rest of the World accounts cover transactions and assets/liabilities between resident and non-resident institutional units.

194. As the Rest of the World plays in the accounting structure a role similar to the one of an institutional sector, the Rest of the World account is established from the point of view of the Rest of the World. A resource for the Rest of the World is a use for the Nation and vice-versa. When looking at a balancing item, if it is positive it means a surplus of the Rest of the World and a deficit of the Nation, and vice-versa if it is negative.

195. The Rest of the World account (account V) follows the general accounting structure. However the presentation of the latter is adjusted a bit in order to take into account the relevant specificities of external transactions.

196. Current transactions are recorded in only two accounts, the external account of goods and services and the external account of factor income and current transfers. The balancing item of the first one, the external account of goods and services (V.1), which shows imports of goods and services as resources and exports of goods and services as uses is the external balance of goods and services. If positive, it is a surplus for the Rest of the World and a deficit for the Nation.

197. The second account, the external account of factor income and current transfers (V.II), covers on both sides, compensation of employees, taxes on production and imports (net), property income, current taxes on income, wealth, etc., and other current transfers, respectively receivable and payable by the Rest of the World. The balancing item of this account is the current external balance which plays in the structure of the System a role equivalent to saving for institutional sectors.

198. Then accumulation accounts are relevant, not for all transactions naturally. For example account III.3.1, other changes in volume of assets, would intervene only in case uncompensated seizures happen. Thus it is not shown separately account. The external assets and liabilities account is equivalent with a reverse sign to the part of the consolidated balance-sheet of the economy which relates to financial assets and liabilities. For other domestic assets which are owned by non-residents, a notional institutional unit is always created that is owned as a financial asset by the Rest of the World (and vice-versa for assets owned in other economies by resident units).

V. Rest of the world account (external transactions account)

V.I. External account of goods and services

uses	resources
Exports of goods and services	Imports of goods and services
EXTERNAL BALANCE OF GOODS AND SERVICES	

V.II. External account of factor income and current transfers

uses	resources
	EXTERNAL BALANCE OF GOODS AND SERVICES
Compensation of employees	Compensation of employees
Taxes minus subsidies on production and imports	Taxes minus subsidies on production and imports
Property income	Property income
Current taxes on income, wealth etc.	Current taxes on income, wealth etc.
Other current transfers	Other current transfers
CURRENT EXTERNAL BALANCE	

V.III. EXTERNAL ACCUMULATION ACCOUNTS

V.III.1 Capital account

changes in assets	changes in liabilities and net worth
Net purchases of land and other non-produced assets *)	CURRENT EXTERNAL BALANCE
	Capital transfers receivable(+)
	Capital transfers payable (-)
NET LENDING(+)/NET BORROWING(-)	
	++++++++++++++ CHANGES IN NET WORTH DUE TO CURRENT EXTERNAL BALANCE AND NET CAPITAL TRANSFERS

V.III.2 Financial account

Gold and SDR's	Gold and SDR's
Currency and deposits	Currency and deposits
Securities other than shares	Securities other than shares
Loans	Loans
Shares and other equity	Shares and other equity
Insurance technical reserves	Insurance technical reserves
Other accounts receivable	Other accounts payable
	NET LENDING(+)/NET BORROWING(-)

*) This item never covers land in the case of external transactions

V.III.3. Other changes in assets account

***	
***	
***	
***	
Uncompensated seizures(-/+)	
Nominal holding gains(+)/losses(-) (due to changes in actual prices) (4)	Nominal holding gains(-)/losses(+) (due to changes in actual prices) (4)
neutral revaluation	neutral revaluation
real holding gains(+)/losses(-)	real holding gains(-)/losses(+)
	CHANGES IN NET WORTH DUE TO OTHER CHANGES IN VOLUME OF ASSETS CHANGES IN ACTUAL PRICES neutral revaluation real holding gains/losses

(4) The revaluation only applies to financial assets and liabilities

V.IV. EXTERNAL ASSETS AND LIABILITIES ACCOUNT

assets	liabilities

V.IV.1. Opening balance sheet

Financial assets	Liabilities
	NET WORTH

V.IV.2. Changes in balance sheets

Total changes in assets	Total changes in liabilities
Financial assets	Liabilities
	CHANGES IN NET WORTH, TOTAL

V.IV.3. Closing balance sheet

Financial assets	Liabilities
	NET WORTH

2.5 The aggregates

199. The aggregates are composite values which measures the result of the activity of the entire economy considered from a particular point of view; for example value added, income, consumption, saving, etc. They are summary indicators and key magnitudes for purposes of macro-economic analysis and comparisons over time and space. The SNA aiming at providing a simplified but complete and rather detailed picture of complex economies, the calculation of the aggregates is neither the sole nor the main purpose of national accounting. Summary figures are nevertheless very important.

200. The aggregates may first be obtained as totals of particular transactions in the System, like final consumption, gross fixed capital formaton, social contributions etc.

201. Second, they may result from summing up balancing items for the institutional sectors, such as value added, primary income, disposable income, saving.

202. Finally, they may need some further elaboration.

203. Some of them are so commonly used that they deserve additional explanation at this early stage.

204. Gross domestic product at market prices (GDP) represents the final result of the production activity of resident producer units.

205. Basically GDP is a concept of value added. It is the sum of gross value added of all resident producer units (institutional sectors or, alternatively, industries) plus that part (eventually the total) of taxes on products (net of subsidies) which is not included in the valuation of output. 6/ Gross value added is the difference between output and intermediate consumption.

206. GDP is also equal to the sum of the final uses of goods and services (all uses except intermediate consumption) measured in purchasers' prices, less the value of imports of goods and services.

207. Thirdly, GDP is equal too to the sum of primary incomes distributed by resident producer units: factor incomes plus taxes on production and imports, net of subsidies.

208. By deducting the consumption of fixed capital from GDP, Net domestic product at market prices (NDP) is obtained.

6/ If basic prices are used for valuing output, GDP is equal to the sum of gross value added of all resident producer units plus all taxes on products (net of subsidies on products). If producers prices are used for valuing output, GDP is equal to the sum of gross value added of all resident producer units plus taxes on imports, net of import subsidies - in absence of a value added tax system - or plus taxes on imports (net) and value added type taxes - when such a taxation system does exist.

209. As indicated above (see valuation), the concept of value added, conceptually, should not include the counterpart of consumption of fixed capital. The latter in effect is not a newly created value, but a reduction in the value of previously created fixed assets when they are used up in the production process. Thus theoretically value added is a net concept.

210. This conclusion applies to Domestic product as well. Theoretically, Domestic product should be a net concept. However gross domestic product is commonly used for various reasons: as the depreciation of fixed assets as calculated in business accounting does not generally meet the requirements of SNA concepts, the calculation of consumption of fixed capital necessitates estimations made by statisticians of the present value of the stock of fixed assets, the lifetime of various types of assets, the law(s) of depreciation etc. Not all countries make such calculations, when they do it there may be differences in methodology and some of them use business data even when inadequate. Consequently, gross figures are often available, or available earlier, and they are generally considered more comparable between countries. So GDP is broadly used even if it is, on a conceptual basis, less relevant than Net domestic product.

211. However Net domestic product has also to be calculated, with improved estimates of consumption of fixed capital when necessary, in order to provide a significant tool for various types of analysis.

212. In any case, neither gross nor net domestic product is a measure of welfare. Domestic product is an indicator of overall production activity. As such, its meaning relies heavily on the concept of production that is retained in the System and the way the borderline between intermediate consumption and final uses is drawn: non-remunerated housekeeping services for example are not included within the production boundary and reflected in Domestic product, in-house training activities by enterprises are considered intermediate consumption, which results in lower Domestic product than in the case they are treated as final uses, etc.

213. On the other hand, the signification of market prices determines the meaning of the values which are measured when compiling GDP. First, no different ethic values are attached to certain goods or services in comparison with other types of products: a certain amount of tobacco consumption is equivalent to the same amount of milk or books consumption, the same for education and defence, etc. Second, externalities that is extra market influences, like the nuisances caused by noice in urban buildings, are not taken into account.

214. In addition, it has to be noted that domestic product is not a concept of sustainable income to the extent that economic growth may depend from natural resources and changes in human capital, and exceptional events like war or floods are treated as affecting directly assets and net worth without influencing the measurement of product and income.

215. Domestic product gross or net may be measured at factor incomes by excluding from their measure or market prices all taxes on production and imports, net of subsidies.

216. Primary incomes generated in the production activity of the resident producer units are distributed mostly to other resident institutional units; however, part of them may be distributed to non-resident units. Symmetrically, some primary incomes generated in the Rest of the World may go to resident units.

217. This leads to the definition and measurement of gross national income at market prices (GNI). GNI is equal to gross domestic product less primary incomes payable to non-resident units plus primary incomes receivable by resident units from the rest of the world. In other words GNI is equal to GDP less taxes on production and imports net of subsidies (net), compensation of employees (net) and property income (net) payable to the rest of the world. So gross national income at market prices is the sum of gross primary incomes accruing to resident institutional units/sectors. It is worth noting that gross national income at market prices was called in the 1953 SNA, and is commonly denominated, gross national product (GNP). Contrary to GDP, GNI is not a concept of value added, but a concept of income (primary income).

218. By deducting the consumption of fixed capital from GNI, net national income at market prices (NNI) is obtained. What has been said above on the conceptual relevance of the net concept in case of product applies even more to national income. Remarks on the meaning of domestic product, as regard to welfare or sustainability, are also applicable.

219. National income gross or net may be measured at factor incomes by excluding from their measure at market prices taxes on production and imports (net of subsidies) receivable by institutional sectors.

220. Primary incomes receivable by resident institutional units may be partly used to make transfers to non-resident units; reciprocally resident units may receive transfers originating out of primary incomes in the rest of the world.

221. National disposable income is the sum of disposable income of all resident institutional units/sectors. 7/ Gross national disposable income (GNDI) is equal to gross national income at market prices less current transfers (other than taxes on production and imports net of subsidies) payable to non-resident units, net of corresponding transfers receivable by resident units from the rest of the world. GNDI measures the income available to the nation for final consumption and gross saving.

222. By deducting the consumption of fixed capital from GNDI, net national disposable income, (N.N.D.I) is obtained.

223. All the aggregates referred to above are calculated in current values. The influence of changes in prices may also be eliminated. Domestic product is converted at constant prices in order to measure the change in volume which occurs from one period to another one. This may be done because both output, intermediate consumption and taxes on products (net) are calculable at constant prices. On the other hand, aggregates of income may not be expressed in volume (at constant prices) because income flows may not strictly speaking be broken down between a quantity and a price component. They may be calculated at constant purchasing power or in real terms. When linking domestic product at constant prices to national income in real terms, the effect of changes in the terms of trade between the considered economy and the Rest of the World is accounted for (see chap. ...).

7/ For the economy as a whole there is no difference between disposable income and adjusted disposable income, because current transfers in kind to or from the rest of the world are treated exactly in the same way than transfers in cash.

224. The analysis of wealth is an integral part of the System. Changes in real national wealth are the sum of changes in net worth of all resident institutional sectors less the element of neutral revaluation in proportion to general price level. They are equal to the sum of saving and net capital transfers receivable, other changes in volume of assets and real holding gains or losses.

225. Capital formation and final consumption grouped all together constitute national expenditure gross if gross fixed capital formation is included, net if only net fixed capital formation is considered.

2.6 A synoptic presentation of the accounts, balancing items and main aggregates

2.6 A synoptic presentation of the accounts, balancing items and main aggregates

	ACCOUNTS				BALANCING ITEMS	MAIN AGGREGATES (2)
	Full sequence of accounts for institutional sectors					
CURRENT ACCOUNTS	I. Production account II. Distribution and use of income accounts	I. Production account (1) II.1. Primary distribution of income accounts II.2. Secundary distribution of income account II.3. Redistribution of income in kind account II.4. Use of income account II.4.1. Use of disposable income account II.4.2. Use of adjusted disposable income account	II.1.1. Generation of income account (1) II.1.2. Appropriation of primary income account	II.1.2.1. Entrepreneurial income account II.1.2.2. Appropriation of other primary income account	Value added Operating surplus Mixed income Entrepreneurial income Primary income Disposable income Adjusted disposable income Saving	Domestic product (GDP/NDP) National income (GNI,NNI) National disposable income National saving
ACCUMULATION ACCOUNTS	III. Accumulation accounts	III.1. Capital account III.2. Financial account III.3. Other changes in assets accounts	III.3.1. Other changes in volume of assets account III.3.2. Revaluation accounts	III.3.2.1. Neutral revaluation III.3.2.2. Real holding gains/losses	(Changes in net worth, due to saving and net capital transfer) Net lending/Net borrowing Net lending/Net borrowing Changes in net worth, due to other changes in volume of assets Changes in net worth, due to changes in actual prices Changes in net worth, due to neutral revaluation Changes in net worth, due to changes in relative prices	
BALANCE SHEETS	IV. Balance sheets	IV.1. Opening balance sheet IV.2. Changes in balance sheet IV.3. Closing balance sheet			Net worth Changes in net worth, total Net worth	National wealth Changes in national wealth National wealth
	Transaction accounts					
0. GOODS AND SERVICES ACCOUNT	0. Goods and services account					National expenditure
	Rest of the world account (External transactions account)					
CURRENT ACCOUNTS	V. Rest of the world account	V.I. External account of goods and services V.II. Other current external transactions account			External balance of goods and services Current external balance	External balance of goods and services Current external balance
ACCUMULATION ACCOUNTS		V.III. External accumulation accounts	V.III.1. Capital account V.III.2. Financial account V.III.3. Other changes in assets account		(Changes in net worth due to current external balance and net capital tranfers) (3) Net lending/Net borrowing Net lending/Net borrowing Changes in net worth, due to other changes in volume of assets Changes in net worth, due to changes in actual prices neutral revaluation real holding gains/losses	Net lending/Net borrowing of the nation
BALANCE SHEETS		V.IV. External assets and liabilities account	V.IV.1. Opening balance sheet V.IV.2. Changes in balance sheet V.IV.3. Closing balance sheet		Net worth Changes in net worth, total Net worth	Net external financial position of the nation Net external financial position of the nation

(1) Apply also to industries
(2) Most balancing items and aggregates may be calculated gross or net
(3) Not strictly speaking balancing items, but playing a similar role

Section 3. Comprehensive tables

226. It is now possible to put together the various elements of the central framework architecture which have been introduced in the previous sections, in order to show the overall structure of the SNA.

3.1 Integrated economic accounts for the nation

227. The integrated economic accounts give a complete picture of the accounts of the national economy, including balance sheets, in a way which permits to show the principal economic relations and the main aggregates. This table enables, at the same time to show the general accounting structure of the system and to present a set of resulting data for the institutional sectors, the national economy as a whole and the Rest of the World.

228. In this table, institutional sector accounts, the Rest of the World accounts and transactions accounts are assembled. Uses, changes in assets and assets are on the left side, resources, changes in liabilities and net worth, liabilities on the right side.

229. In the columns appear the institutional sectors and the Rest of the World. There is also a column for the National Economy and one for goods and services. As a matter of convention, a reverse order is followed on the two sides.

230. The rows show the transactions (assets and liabilities for balance sheets), balancing items and some important aggregates. The presentation of transactions follow the structuring of the sequence of accounts for institutional sectors. However, with a few exceptions that are explained below, the row for a given transaction (compensation of employees, social benefits in cash for example) shows the transactions account for this transaction.

231. In order to make this table, as simple as possible, though covering the overall economic process, classifications of sectors, accounts transactions, assets and liabilities are used here at the uppermost level of aggregation compatible with the understanding of the structure of the System. Of course sectors and rows might be subdivided, in order to introduce sub-sectors or more detailed transactions.

232. Looking first at the institutional sectors current accounts, one can consider for example the columns for non-financial corporations. The production account shows output (5,111) on the right side, intermediate consumption (2,896) and value added (2,215 gross, 1,881 net, the difference referring to consumption of fixed capital 334) on the left side. In the same row, value added, the balancing item of the production account, appears again as a resource of the generation of income account. Then the uses of this latter account - compensation of employees (1587) and other taxes linked to production (net of subsidies) (14) 8/ - are shown on the left side, the balancing item being operating surplus (614 gross, 280 net) 9/

8/ In this table, output has been supposed valued at basic prices, consequently, taxes on products (net) do not appear at all in the account of producers.

9/ In order to lighten the presentation of this table, consumption of fixed capital which makes always the difference between gross and net balancing items has no longer be repeated, except when showing figures for saving.

USES

CURRENT ACCOUNTS

RESOURCES

ACCOUNTS	TOTAL	GOODS AND SER-VICES (RES.)	REST OF THE WORLD	NATIO-NAL ECONOMY	HOUSE-HOLDS	GENERAL GOVERN-MENT	FINAN-CIAL CORPO-RATIONS	NON-FINAN-CIAL CORPO-RATIONS	TRANSACTIONS AND BALANCING ITEMS	NON-FINAN-CIAL CORPO-RATIONS	FINAN-CIAL CORPO-RATIONS	GENERAL GOVERN-MENT	HOUSE-HOLDS	NATIO-NAL ECONOMY	REST OF THE WORLD	GOODS AND SER-VICES (USES)	TOTAL	ACCOUNTS
I. PRODUCTION/ EXTERNAL ACCCOUNT OF GOODS AND SERVICES	1093	1093							Imports of goods and services						1093		1093	I. PRODUCTION/ EXTERNAL ACCOUNT OF GOODS AND SERVICES
	1124		1124						Exports of Goods and services							1124	1124	
	7947	7947							Output (1)	5111	330	1086	1420	7947			7947	
	3775			3775	422	333	124	2896	Intermediate consumption							3775	3775	
	606	606							Taxes on products (net) (3)					606			606	
	4778			4778	998	753	206	2215	Value added, gross/GDP	2215	206	753	998	4778			4778	II.1.1 GENERATION OF INCOME
	589			589	160	83	12	334	Consumption of fixed capital	334	12	83	160	589			589	
	4158		-31	4189	838	670	194	1881	VALUE ADDED, NET/NDP, EXT. BAL. OF GOODS AND SERV.	1881	194	670	838	4189	-31		4158	
II.1.1 GENERATION OF INCOME	2593		10	2583	190	688	118	1587	Compensation of employees				2573	2573	20		2593	II.1.2 APPROPRIATION OF PRIMARY INCOME
	601			601					Taxes on production and imports (net)			596		596	5		601	
	606			606					taxes on products (net) (2)			583		583	23		606	
	-5			-5	-12	5	-12	14	Other taxes linked to production (net)			13		13	-18		-5	
	930			930	156	60	100	614	Operating surplus, gross	614	100	60	156	930			930	
	664			664	664				Mixed income, gross				664	664			664	
	450			450	105	-23	88	280	OPERATING SURPLUS, NET	280	88	-23	105	450			450	
	555			555	555				MIXED INCOME, NET				555	555			555	
II.1.2 APPROPRIATION OF PRIMARY INCOME	1607		191	1416	116	116	841	343	Property income	107	874	67	352	1400	207		1607	
	4747			4747	3629	607	133	378	Primary income, gross/ (GNI)	378	133	607	3629	4747			4747	II.2 SECONDARY DISTRIBUTION OF INCOME
	4158			4158	3469	524	121	44	PRIMARY INCOME, NET/NATIONAL INCOME, NET	44	121	524	3469	4158			4158	
II.2 SECONDARY DISTRIBUTION OF INCOME	429		1	428	311	3	34	80	Current taxes on income, wealth etc.			429		429			429	
	2571		85	2486	1191	1018	144	133	Other current transfers	144	126	1167	1049	2486	85		2571	
	1070		7	1063	1063				Social contributions	52	25	993		1070			1070	
	881			881	3	791	22	65	Social benefits in cash				871	871	10		881	
	620		78	542	125	227	122	68	Miscellaneous current transfers	92	101	174	178	545	75		620	
	4748			4748	3176	1182	81	309	Disposable income, gross			1182	3176				4358	II.3 REDISTRIBUTION OF INCOME IN KIND
	4159			4159	3016	1099	69	-25	DISPOSABLE INCOME, NET			1099	3016				4115	
II.3 REDISTRIBUTION OF INCOME IN KIND	720			720	9	711			Other current transfers									
									Social transfers in kind				720	720			720	
	4358				3887	471			Adjusted disposable income, gross			471	3887	4358			4358	II.4 USE OF INCOME
	4115				3727	388			ADJUSTED DISPOSABLE INCOME, NET			388	3727	4115			4115	
II.4 USE OF INCOME									Disposable income,gross	309	81	1182	3176	4748			4748	
									DISPOSABLE INCOME, NET	-25	69	1099	3016	4159			4159	
	3850			3850	3413	445			Actual final consumption							3850	3850	
	3850			3850	2702	1156			Final consumption expenditure							3850	3850	
	890			890	474	26	81	309	Saving, gross									
	589			589	160	83	12	334	Consumption of fixed capital									
	300		-1	301	314	-57	69	-25	SAVING, NET/CURRENT EXTERNAL BALANCE									

ACCUMULATION ACCOUNTS

CHANGES IN ASSETS										CHANGES IN LIABILITIES AND NET WORTH								
ACCOUNTS	TOTAL	GOODS AND SER-VICES (RES.)	REST OF THE WORLD	NATIO-NAL ECONOMY	HOUSE-HOLDS	GENERAL GOVERN-MENT	FINAN-CIAL CORPO-RATIONS	NON-FINAN-CIAL CORPO-RATIONS		NON-FINAN-CIAL CORPO-RATIONS	FINAN-CIAL CORPO-RATIONS	GENERAL GOVERN-MENT	HOUSE-HOLDS	NATIO-NAL ECONOMY	REST OF THE WORLD	GOODS AND SER-VICES (USES)	TOTAL	ACCOUNTS
III.1									SAVING, NET/CURRENT EXTERNAL BALANCE	-25	69	-57	314	301	-1		300	III.1
	889			889	324	151	24	390	Gross capital formation							889		
	905			905	328	144	23	410	Gross fixed capital formation							905		
	-16			-16	-4	7	1	-20	Changes in stocks							-16		CAPITAL
	-589			-589	-160	-83	-12	-334	Consumption of fixed capital (-)									
CAPITAL					-20	2	1	17	Net purchases of land and other non-produced assets									
									Capital transfers, receivable	27	6	46	12	91	4		95	
									Capital transfers, payable (-)	-18	-8	-53	-15	-94	-1		-95	
									CHANGES IN NET WORTH DUE TO SAVING AND NET CAPITAL TRANSFERS (4)	-16	67	-64	311	298	2		300	
			2	-2	167	-134	54	-89	NET LENDING (+) / NET BORROWING (-)	-89	54	-134	167	-2	2			III.2
III.2	1759		129	1630	316	83	1043	188	Net Acquisition of financial assets									
									Net Incurrence of liabilities	277	989	217	149	1632	127		1759	FINANCIAL
	-2		-2						Gold and SDR'S		-2			-2			-2	
FINANCIAL	622		25	597	167	48	356	26	Currency and deposits	19	507	42		568	54		622	
	355		55	300	6	8	269	17	Securities other than shares	22	193	113		328	27		355	
	318		-14	332		-2	329	5	Loans	58	49	42	142	291	27		318	
	319		46	273	132	21	57	63	Shares and other equity	99	203			302	17		319	
	72			72	68			4	Insurance technical reserves		71			71	1		72	
	75		19	56	-57	8	32	73	Other accounts receivable/payable	79	-32	20	7	74	1		75	
III.3.1.									Econ. appearance of non-prod. assets (+)									III.3.1.
	-2			-2				-2	Econ. disappearance of non-produced assets (-)									
OTHER									Destruct. of assets by non-insurable risks (-)									OTHER
CHANGES									Uncompensated seizures (+/-)									CHANGES
IN									Adjustment of the residual value of assets (+/-)									IN
VOLUME									Changes in classification and structure									VOLUME
OF ASSETS									CHANGES IN NET WORTH DUE TO OTHER CHANGES IN VOLUME OF ASSETS	-2				-2			-2	OF ASSETS
III.3.2									Nominal holding gains (+)/losses (-) (due to changes in actual prices)									III.3.2
RE-	541			541	295	41	8	197	Non-financial assets									
VALUA-	410			410	190	38	8	174	produced assets									RE-
TION	131			131	105	3		23	non-produced assets									VALUA-
	1135		164	971	301	19	277	374	Financial assets									TION
									Liabilities	509	446	6		961	174		1135	
									CHANGES IN NET WORTH DUE TO CHANGES IN ACTUAL PRICES	62	-161	54	596	551	-10		541	

BALANCE SHEETS

ASSETS **LIABILITIES**

ACCOUNTS	TOTAL		REST OF THE WORLD	NATIONAL ECONOMY	HOUSEHOLDS	GENERAL GOVERNMENT	FINANCIAL CORPORATIONS	NON-FINANCIAL CORPORATIONS		NON-FINANCIAL CORPORATIONS	FINANCIAL CORPORATIONS	GENERAL GOVERNMENT	HOUSEHOLDS	NATIONAL ECONOMY	REST OF THE WORLD		TOTAL	ACCOUNTS
IV.1 OPENING BALANCE SHEET	17260			17260	10220	1130	210	5700	Non-financial assets									IV.1 OPENING BALANCE SHEET
	11482			11482	5670	1000	202	4610	produced assets									
	5778			5778	4550	130	8	1090	non-produced assets									
	24000		2600	21400	4700	1600	10800	4300	Financial assets									
									Liabilities	6600	10700	1900	2000	21200	2800		24000	
									NET WORTH	3400	310	830	12920	17460	-200		17260	
IV.2 CHANGES IN BALANCE SHEET									Total changes in assets									IV.2 CHANGES IN BALANCE SHEET
	839			839	439	111	—21	268	Non-financial assets									
	710			710	354	106	20	230	produced assets									
	129			129	85	5	1	38	non-produced assets									
	2894		293	2601	617	102	1320	562	Financial assets									
									Total changes in liabilities	786	1435	223	149	2593	301		2894	
									CHANGES IN NET WORTH, TOTAL	44	-94	-10	907	847	-8		839	
									SAVING AND NET CAPITAL TRANSFERS	-16	67	-64	311	298	2		300	
									OTHER CHANGES IN VOLUME OF ASSETS	-2				-2			-2	
									CHANGES IN ACTUAL PRICES	62	-161	54	596	551	-10		541	
									neutral revaluation									
									real holding gains (+)/ losses (-)									
IV.3 CLOSING BALANCE SHEET	18099			18099	10659	1241	231	5968	Non-financial assets									IV.3 CLOSING BALANCE SHEET
	12192			12192	6024	1106	222	4840	produced assets									
	5907			5907	4635	135	9	1120	non-produced assets									
	26894		2893	24001	5317	1702	12120	4862	Financial assets									
									Liabilities	7386	12135	2123	2149	23793	3101		26894	
									NET WORTH	3444	216	820	13827	18307	-208		18099	

(1) Output can be valued at
(a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT.

(2) The item "taxes on products, net" will only apply in cases (b) and (c), including for
(b) taxes on products, net, except taxes on imports, net
(c) taxes on products, net, except VAT and taxes on imports, net

(3) The item "taxes on products, net" in the columns goods and services and national economy will include in case
(a) all taxes on products, net
(b) taxes on imports, net
(c) taxes on imports and VAT, net

(4) "Changes in net worth due to saving and net capital transfers" corresponds to the total at the right hand side of the capital account.

surplus which in turn appears again as a resource of the appropriation of primary income account. After recording property income receivable (right), 107, and payable (left), 343, primary income 378, (gross), 44 appears as the balancing item of this account and, in turn, as a resource of the secondary distribution of income account. This latter shows current taxes on income, wealth, etc., other current transfers when appropriate and disposable income (309 gross) - 25 net that is undistributed income of non-financial corporations, which for this sector is then equal to saving, the balancing item of the use of income account.

233. The accounts for other institutional sectors may be read the same way, the relevant transactions varying according to the sector involved.

234. A peculiarity of the presentation of the accounts of households and government needs to be explained. In these cases, accounts II.4.1 Use of disposable income account and II.4.2 Use of adjusted disposable income are presented in combination, both figures appearing in these accounts being shown side by side. On the right side of the use of income account, disposable income and adjusted disposable income, the balancing items respectively of accounts II.2 and II.3, appear on two rows. Then on the left side, final consumption expenditure and actual final consumption are also shown on two rows. Looking at the Redistribution of income in kind account and the use of income account, it may be seen that disposable income, net, is 1,099 for general government and 3,016 for households, social benefits in kind are 711 payable by government and 9 payable by non-profit institutions serving households, final consumption expenditure is 1,156 for government and 2,702 for households; thus adjusted disposable income net, is 88 for government (1,099 - 711) and 3,727 for household (3,016 + 711). Different printing types are to be used for disposable income and final consumption expenditure on one hand, adjusted disposable income and final consumption on the other hand in order to help reading the account.

235. Now we may look at the Rest of the World accounts. They are presented from the viewpoint of the rest of the world; a resource of the rest of the world is shown on the right side, a use on the left side. The external account of goods and services is shown at the same level as the production account for institutional sectors. Imports of goods and services (1,093) are a resource for the rest of the world, exports (1,124) are a use. The external balance of goods and services (-31) appears on the same row as value added net. With a positive sign, it is a surplus of the Rest of the World (a deficit of the nation) and vice-versa. The other current external transactions account covers all other current transactions. Starting with the external balance of goods and services (-31) as a resource on the same row as value added net on the right side, it shows the various kinds of taxes, compensation of employees and other current transfers when appropriate. The current external balance (-1) appears on the same row as saving net. Again, with a positive sign, it is a surplus of the Rest of the World (a deficit of the nation) and vice-versa.

236. It has been said above that the row for a given transaction shows in general the corresponding transactions account. For example, the row for property income shows that property income was payable by non-financial corporations (343), financial corporations (841), general government (116), households (116 too) and the Rest of the World (191). In turn, it was receivable by non-financial corporations (107), financial corporations (874), general government (67), households (352) and the Rest of the World (207). The total of payables is of course equal to the total of receivables (1,607).

237. The presentation of transactions on goods and services is different. In this case, as explained when presenting transactions accounts (see p. ...), there is not a balance for each type of transaction, like exports or gross fixed capital formation, but a global one between all uses and all resources of goods and services. Consequently, in the integrated economic accounts for the nation, the goods and services account is shown in column, not in row. It reflects the various transactions on goods and services which appear in the accounts of the institutional sectors. Uses of goods and services in the institutional sectors accounts are reflected on the right side column for goods and services; in turn, resources of goods and services in the institutional sectors accounts are reflected on the left side column for goods and services. On the resources side of the table, the figures appearing in the column for goods and services are the counterpart of the uses made by the various sectors and the rest of the world: exports (1,124), intermediate consumption 3,775, final consumption expenditure/actual final consumption (3,858), changes in stocks -16 and gross fixed capital formation 905. On the use side of the table, the figures in the column for goods and services are the counterpart of the resources of the various sectors and the rest of the world: imports 1,093 and output 7,947. On the same side taxes on products (net) 606 are shown directly in the column for goods and services. They are a component of the value of the supply of goods and services which has no counterpart in the value of the output of any institutional sector. 10/

238. The columns for the National economy remain to be looked at. With the exception of taxes on products (net) and domestic product, the figures in these columns are simply the sum of the corresponding figures for the institutional sectors. The production account for the national economy includes, as resources, output (the total output of the economy 7,947 and taxes on products (net) 606, the latter being the counterpart of the figure appearing on the left side in the column for goods and services. The uses side of the production account for the national economy shows intermediate consumption 3,775 and domestic product at market prices 4,778, gross, 4,189, net. The latter is the sum of value added of the various sectors and taxes on products (net). Domestic product then appears on the right side as a resource of the generation of income account for the nation. Taxes on products (net) are shown again on the left side in the column for national economy and on the right side as a resource of government (and the Rest of the World if relevant). This double routing of taxes on products (net) is made in order to get domestic product, gross and net, directly in the integrated accounts, as explained above.

239. The other items in the columns for National economy are self-explanatory. National income at market prices 4,747 gross, 4,158 net is shown directly as the sum of primary income of the various sectors; national disposable income, national saving, etc are also obtained directly.

240. The accumulation accounts in this table are presented exactly as in the sequence of accounts for the institutional sectors.

241. It may be seen for example that saving (net) of households is 314. Households received 12 and had to pay 15 as capital transfers. So changes in their net worth due to saving and net capital transfers has been 311. Households had -4 as changes

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10/ Of course if output was valued at producers prices, the amount of taxes on products (net) recorded here would be lower.

in stocks (a net decrease) and 328 as gross fixed capital formation (168 as net fixed capital formation after deduction of consumption of fixed capital). Their net purchases of non-produced assets (land actually) have been -20, which means net sales for 20. The net lending of households has been 167. They incurred financial liabilities (net) for 149 and acquired financial assets (net) for 316. No other changes in volume of assets were recorded for them during this period. The value of the assets held by households increase by 596 due to changes in actual prices of these assets, while there was no nominal gains/losses on their liabilities which means that all their liabilities are probably denominated in monetary terms and in national currency in the economy in question.

242. The columns for goods and services show only changes in stocks and gross fixed capital formation on the right side. Transactions appear in the columns for the Rest of the World only when it is relevant (mainly capital transfers and financial transactions).

243. The balance sheets also are presented as in the institutional sectors accounts. Of course, the columns for goods and services are of no use here. The Rest of the World Columns show the assets and liabilities position of the Rest of the World, vis-à-vis the Nation (External assets and liabilities account). The row "changes in net worth due to saving and net capital transfers" corresponds, for the Rest of the World, to the current external balance and net capital transfers.

244. In order to see the relations between accumulation accounts and balance sheets, the example of general government may be taken. The opening assets were 2,730 (1,130 produced assets + 1,600 financial assets) and the opening liabilities 1,900, net worth being thus for general government 830. The total value of produced assets increased by 109 which results from all changes in these assets recorded in the accumulation accounts (changes in stock 7, net fixed capital formation 61, id est GFCF 144 - CFC 83, nominal holding gains due to changes in actual prices 41). Non-produced assets increased by 2 which comes from net purchases on non-produced assets 2. Financial assets increased by 102 :(net) acquisition of financial assets 83, nominal holding gains due to changes in actual prices 19. On the left side, financial liabilities increased by 223, which results again from all changes in liabilities recorded in the accumulation accounts (net incurrence of financial liabilities 217, nominal holding losses due to changes in actual prices 6 - let us remind that a positive revaluation of liabilities in actual prices is equivalent to a holding loss for the debtor). So the closing assets are 2,943 (1,239+2+1,702) and the closing liabilities 2,123, closing net worth being 820 incurring is a decrease of 10. The sources of this change in net worth are summarized in the right side of account IV.2: changes in net worth due to saving and net capital transfers - 64 (see also the right side of the capital account) and changes in net worth due to changes in actual prices 54 (see also the right side of the revaluation account).

245. The integrated economic accounts for the Nation provides an overview of the economy as a whole. As already indicated, the integrated presentation contains much more than what actually has been included in the table and may be even used for giving more detailed view if desirable. Columns might be introduced for sub-sectors. The Rest of the World column could be subdivided according to various geographical zones. The column for goods and services may show separately market goods and services. The classification of transactions in the rows might be used at more detailed levels (see chap. XIII for further elaboration of this paragraph).

246. However, trying to put too many things at the same time directly in this scheme would result in a very complicated and unmanageable table. For these reasons more detailed analysis of production and transactions on goods and services, transactions in financial instruments, detailed balance sheets, as well as analysis by purpose are done in other frameworks which are presented successively, their links with the integrated economic accounts being also explained.

3.2 Central supply and use table and other input-output tables

247. The detailed analysis of production by industries and flows of goods and services by kind of products is an integral part of the integrated central framework. However the table presenting the integrated economic accounts for the Nation does not exhibit at all information by products or by industries, in order to keep it manageable.

248. It would be feasible to include such details in the overall table. For example, the rows for output, intermediate consumption and value added might be subdivided by kind of economic activity; the columns for goods and services too might be subdivided by type of products. This is not however the solution retained in the System. Firstly, the table would become cumbersome. Secondly, a systematic cross-classification of output and intermediate consumption by institutional sector and industry, even without a breakdown by product, is not considered an essential objective. Consequently the System provides for such a cross-classification as regards only value added and its components (see chap. ...).

249. The integrated economic accounts for the Nation contain only production and generation of income accounts by institutional sectors as well as a global balance of transactions on goods and services.

250. The detailed analysis of production activities and goods and services balances is made in the input-output tables.

251. The input-output framework of the System includes a number of different approaches as regards producing units, valuation of transactions etc. They are presented in the relevant chapter.

252. The central input-output table (supply and use table) of the System includes three interrelated components, the origin of supply (resources) of goods and services, uses of products and the production accounts for industries (see the following table). The format of this table is designed in order to make the accounting structure clear, not necessarily for publishing the results.

253. The upper part of the table shows the origin of the resources of goods and services. In the rows, the various types of products are presented according to a classification which can be used of course at various levels of detail. In the columns, starting from the right side, imports are first shown. Then the output of industries, according to the activity classification, appears. It may be valued either at basic prices or at producers' prices in the absence of VAT, or at producers' prices in the presence of VAT. The column for the National economy records the total output of industries for each kind of products. Industries being groupings of establishments, a given industry may have its output covering a number of different products, the main one(s) and the secondary one(s).

RESOURCES	TOTAL SUPPLY IN PURCHASERS' PRICES	Trade & transport margins	Taxes on products net (3)	INDUSTRIES (by ISIC cat.) Agric. hunting, ... Wholesale... retail ..	NATIONAL ECONOMY	IMPORTS of goods and serv.
GOODS AND SERVICES (by CPC sections:)				Output (1)		
Agriculture, forestry and fishery products Ores and minerals, electricity, gas & water						
Trade services, restaurant & hotel services						
Community, social and personal services						
TOTAL						

(1) Output can be valued at
(a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

(2) The item "taxes on products, net" will apply to industries only in cases (b) and (c), including in case
(b) taxes on products, net, except taxes on importr, net
(c) taxes on products, net, except taxes on imports and VAT, net

(3) The item "taxes on products, net" will include in case
(a) all taxes on products, net
(b) taxes on imports, net
(c) taxes on imports and VAT, net

USES	TOTAL USES IN PURCHASERS' PRICES			INDUSTRIES (by ISIC cat.) Agric. hunting, ... Wholesale... retail ..	NATIONAL ECONOMY	EXPORTS of goods and serv.	Final consumption expenditure HOUSEHOLDS HOUSEHOLDS excl.NPI	 NPI collective	 individual	 GENERAL GOVERNMENT collective	 individual	Gross capital formation Gross fix.cap. format.	 Changes in stocks
GOODS AND SERVICES (by CPC sections:)				Intermediate consumption									
Agriculture, forestry and fishery products Ores and minerals, electricity, gas & water													
Trade services, restaurant & hotel services													
Community, social and personal services													
TOTAL USES in purchasers' prices													
TOTAL GROSS VALUE ADDED/GDP				Gross value added									
Compensation of employees													
Taxes on production and imports, net Taxes on products, net Other taxes linked to production, net			(3)	(2)									
Operating surplus, net Mixed income, net													
Consumption of fixed capital													
Operating surplus, gross Mixed income, gross													
TOTAL													

254. Taxes on products (net) - with varying content according to the valuation of output - and trade and transport margins are recorded in two columns in order to get total supply of each type of products valued at purchasers prices. Of course the corresponding trade and transport services are deducted globally at the crossing between the relevant rows and the column for trade and transport margins. Thus the total of the latter is zero.

255. Below, uses of goods and services are recorded at purchasers prices (i.e. including taxes on products - net - except deductible taxes). The same classification of products is used in the rows. For each product total supply and total used in purchasers' prices are of course equal. Columns include successively intermediate consumption of industries, again using the same classification as in the upper part; exports, final consumption expenditure and gross capital formation. The column for the National economy records total intermediate consumption of industries for each kind of product.

256. As the columns for final consumption record first final consumption expenditure by institutional sectors, these columns are further subdivided between individual consumption expenditure and collective consumption expenditure, in order to make actual final consumption calculable for households and government respectively.

257. The lower part of the table refers to gross value added and its components: compensation of employees, taxes on products, net (see footnote 3), other taxes linked to production (net), operating surplus/mixed income which is shown gross and net, and consumption of fixed capital. Naturally, these rows are used only for industries.

258. Looking at the table, it is easy to recognize the shortened sequence of accounts for industries (production and generation of income account) that has been presented on page ... above. For each industry, the composition of its output by product appears in the upper part of the table; then, below, intermediate consumption by product and components of value added can be seen; of course the total of inputs is equal to the total of output.

259. A peculiarity of the table has to be explained. In the lower part, the column for National economy records the total of each component of value added. However, in the case of taxes on products (net), it includes more, that is all taxes on products (net) including what appears in the column taxes on products, net (the total or part of them according to the way output is valued). Doing so, it is possible to see gross domestic product directly in the supply and use table. Looking at the row total gross value added/GDP appears in the column National Economy. It is the sum of gross value added of all industries plus taxes on products (net) which may be seen at the crossing of the row and column for taxes on products (net).

260. The table as it stands provides simple links with the integrated economic accounts for the Nation. In effect, exactly the same concepts and definitions and the same valuation are used for the central supply and use table and the institutional sector accounts. Consequently, the global figures for output, imports of goods and services, taxes on products (net), intermediate consumption, exports of goods and services, final national uses, gross value added and its components and of course GDP are the same in both tables. Uses at purchasers prices are close to the way economic units generally look at them and provide figures most current analysts require in first instance.

261. The central supply and use table integrates various approaches which are often followed only on a partial basis, at least regularly. The lower part of the table includes the breakdown of GDP by industry of origin which is familiar to many people. The upper parts of the table correspond to the so-called commodity flow approach. If one does not break down the intermediate consumption by industry of use, keeping only the total by product (Columns National economy) a simplified commodity flow approach may be followed. This permits to undertake supply and disposition balancing on a regular annual basis, even when intermediate consumption may not be analysed with the same frequency for each industry according to its cost structure. Additionally, if detailed complete input-output tables are established from time to time, a regular estimation of intermediate consumption cross-classified by industry and by product may be feasible in between at least as a checking procedure for the balancing of the accounts. In brief, the central supply and use table (which is in fact an input-output table) may provide an actual means of integrating regular analysis of production by industries and flows of goods and services, in the absence of more refined input-output analysis.

262. For such more refined analysis, a number of alternative supply and use or other input-output tables may be used, which are parts of the System (see chap. ...):

- market and non-market producers are distinguished, eventually market and non-market products

- the domestic and imports components of uses may be shown separately

- output may be valued using alternative methods

- uses of goods and services may be valued in different ways: excluding trade and transport margins from the value of total supply of goods and routing them directly to the various uses as trade and transport services; valuing detailed uses at basic prices; combining these two alternatives, etc.

- deliveries of industries to industries may be shown instead of the indirect link industries - products - industries (symmetric input-output table)

- industries may be defined in terms of totally homogeneous activities (symmetric input-output table).

3.3 Tables of transactions in financial instruments

263. The system provides for an in-depth analysis of financial transactions. In the integrated economic accounts for the nation, transactions in financial instruments are shown using the more aggregated level of the classification relating to this kind of transactions and the institutional sectors classification at the first level also. In this case, the first attempt is to give an integrated presentation of all transactions/changes in assets and liabilities of the various institutional sectors in the context of accounts and balance-sheets covering all aspects of economic life in the SNA sense. The juxtaposition of the accounts for all institutional sectors and the Rest of the World permits to get at the same time a balance of transactions in financial instruments for each main category of the latter (see rows 52 to 58 in the integrated economic accounts). In total, the integrated economic accounts give an overall summarized of the results of financial life.

264. However one may like to know more about the financial transactions realized by a given sector. In that case, the classification of financial instruments has to be used at a more detailed level. A presentation of the financial account of each institutional sector showing the relevant details is made in chapter X. Equally it is necessary, for financial analysis purposes, to use the classification of institutional sectors at a more detailed level, especially in the case of financial corporations.

265. Grouping altogether the financial accounts for detailed sectors and sub-sectors and detailed category of transactions in financial instruments results in a detailed table of transactions in financial instruments which is no more in fact than an expansion of the financial part of the integrated economic accounts. This table or these detailed tables (variants are conceivable) use the full classificiation of transactions and more detailed levels of the sectors classification, especially for financial corporations. In addition, many of the categories of financial instruments, but particularly currency and deposits, are subdivided according to positions denominated in domestic currency and those denominated in national currency. Direct investment is recorded as a memorandum item (see chap. X).

266. Such tables which cross-classify financial instruments with debtor and creditor sectors respectively do not exhibit the direct connections between debtors and creditors except when only one debtor sector or one creditor sector is involved. In order to show these links which are very important for financial analysis, an additional three-dimensional approach is followed in the System. The aim is to show first for a given debtor sector and each type of financial instruments what sectors have changed in the period under review their creditor position towards the first one. Second, conversely, the objective is to show for a given creditor sector and again each type of financial instrument what sectors have changed in this period their debtor position towards the first one. Schematically, these relations may be summarized in the following table. There is a column for each financial instrument. Then for each debtor sector successively are shown changes in its debtor position towards each of the sectors (including itself when transactions between units composing this sector have not been consolidated). Of course the symmetric information (changes in creditor position of a given sector towards the various sectors, including itself) is automatically provided for. The lower parts of the table show the totals which correspond exactly to what may be found in a two dimensional table of the kind referred to previously.

267. The tri-dimensional table of financial transactions assembles in fact n matrices (n being equal to the number of types of financial instruments that are distinguished) of the type sectors/sectors, one for each kind of financial instrument.

268. As such a presentation is not necessarily easy for actually presenting the data, other presentation(s) may be preferred in practice. For example, a detailed classification of financial instruments combined with a sector classification is cross-classified twice with the sector classification, in order to show from one side changes in the debtor positions of the debtor sectors and from the other side changes in the creditor position of the creditor sectors in relation with each financial instrument and sector distinguished in the combined instruments/sector classification. As compared to the presentation of the financial accounts made in the integrated economic accounts, this means in short introducing a sector distinction below headings of financial instruments when relevant (for a more complete explanation see chap. X).

FINANCIAL TRANSACTIONS BETWEEN CREDITOR AND DEBTOR SECTORS, reduced format

Debtor sector	Creditor sector	BY TYPE OF FINANCIAL INSTRUMENT			
		TOTAL	Gold and SDR's	....	Other accounts receivable/ payable
		Assets of creditor sectors and liabilities of debtor sectors			
	Non-financial corporations				
	Financial corporations				
Non-financial corporations	General government				
	Households				
	Rest of the world				
Financial corporations	Non-financial corporations				
	....				
General government	Non-financial corporations				
	....				
Households	Non-financial corporations				
	....				
Rest of the world	Non-financial corporations				
	....				
Debtor sector:		Liabilities of debtor sectors			
Non-financial corporations					
Financial corporations	All Creditor sectors				
General government					
Households					
Rest of the world					
	Creditor sectors:	Assets of creditor sectors			
	Non-financial corporations				
	Financial corporations				
All Debtor sectors	General government				
	Households				
	Rest of the world				

3.4 Balance-sheets

269. Balance-sheets in the integrated economic accounts for the Nation are presented in a very aggregated way. For each sector or sub-sector more complete balance-sheets may be built up, using the detailed classification of assets and liabilities when appropriate. Changes in assets and liabilities for each sector may also be analysed for each type of assets and liabilities and each source of changes, like in the following table which is an integrated presentation of balance-sheet and accumulation accounts.

270. Assets and liabilities and net worth are shown in the rows. The first column relates to the opening balance-sheet (at prices as of the beginning of the period) the last one to the closing balance-sheet (at prices as of the end of the period). The columns in between indicate the changes in assets, liabilities, and net worth described in the accumulation accounts. So this table is a cross-classification of assets liabilities net worth and sources of changes in them. If one wants to cross-classify systematically assets/liabilities and all kinds of sources of changes as they appear in the classification of transactions used in the accumulation accounts, room has to be provided for more details. The column capital and financial accounts may show separately gross fixed capital formation and consumption of fixed capital (if not, only net fixed capital formation is identified for each type of fixed assets). The column other changes in volume of assets account may also show separately the various types of such changes when relevant especially changes in classification and structure when they occur.

271. Such tables for all institutional sectors, the National Economy and the Rest of the World may be put altogether in a synoptic table, which differs from the preceding one only by its size. Each column is simply subdivided in six, showing the main institutional sectors, the national economy and the Rest of the World.

272. For financial analysis, tables of financial assets and liabilities grouping only the financial parts of balance-sheets are especially useful. As for transactions in financial instruments, these tables may show simply the assets position and the liabilities position of the various sectors without indicating what sector is creditor or debtor of other sectors. In addition three dimensional tables may be elaborated showing the "from whom to whom?" links for each type of financial instruments. Of course the latter permits much better analysis. The presentation of such tables is exactly the same than for tables of transactions in financial instruments except that assets/liabilities are shown instead of changes in assets/liabilities and the net financial position of each sector appears instead of its net lending/borrowing.

TABLE 2.7 INTEGRATED BALANCE SHEETS AND ACCUMULATION ACCOUNTS (FOR THE NATION AND FOR SECTORS), reduced format

ASSETS, LIABILITIES AND NET WORTH	Opening balance sheet	Capital & Financial Accounts	Other changes in volume of assets account	Revaluation account		Closing balance sheet
				Nominal holding gains	Real holding gains	
ASSETS						
Non-financial assets						
Produced assets						
Stocks						
Fixed assets						
Tangible fixed produced assets						
Residential buildings						
Other buildings and construction works						
Equipment						
Natural cultivated assets						
Tangible artistic work						
Intangible fixed produced assets						
Research and development						
Mineral exploration related to subsoil resources						
Computer Software						
Literary artistic work						
Non-produced assets						
Tangible non-produced assets						
Land						
Subsoil assets						
Historical monuments						
Antiques and other art objects (incl. precious metals and stones held by households)						
Intangible non-produced assets						
Financial assets						
Gold and SDR's						
Currency and deposits						
Securities other than shares						
Loans						
Shares and other equity						
Insurance technical reserves						
Other accounts receivable/payable						
LIABILITIES						
Gold and SDR's						
Currency and deposits						
Securities other than shares						
Loans						
Shares and other equity						
Insurance technical reserves						
Other accounts receivable/payable						
NET WORTH						

3.5 Analysis according to purpose

273. As explained in section 1, the purpose of a transaction is a diffent dimension from the ones which are dealt with in the previous tables.

274. Some tables cross-classify, for certain sectors or sub-sectors, purposes and types of transactions when it is relevant.

275. As compatible but different classifications are used according to the sector concerned, these partial analysis by purpose cannot be integrated in a single table and no significant total for the national economy may be calculated in the central framework, except in some cases. (NB: analysis by purpose was given little attention in the revision process until now; the previous paragraphs should be expanded later on if feasible).

3.6 Simplified accounts for the Nation

276. The columns relating to the National economy and the Rest of the World in the integrated economic accounts provide the necessary information for establishing simplified, consolidated accounts for the Nation as a whole. Various alternatives exist for presenting these accounts. Below is a proposed set of simplified accounts.

277. The production account and the goods and services accounts are combined in order to show gross domestic product at market prices and its counterparts in final uses and the external balance of goods and services.

278. All accounts related to distribution and use of income also are combined. The right side shows GDP at market prices, external transactions (net) in primary incomes, gross and net national income at market prices, other external current transfers and finally national disposable income net. On the left side, final consumption and saving, net appear. The accumulation accounts and the external transactions accounts are also condensed. As part of the simplified accounts for the Nation, the external transactions are presented from the point of view of the Nation. Thus resources and uses are reversed in comparison with the Rest of the World accounts.

TABLE 2.8 SIMPLIFIED ACCOUNTS FOR THE NATION

I. PRODUCTION AND GOODS AND SERVICES ACCOUNT

resources	uses
Output (1) Taxes on products (net) (2) Intermediate consumption (-)	Final consumption expenditure/ / actual final consumption Gross capital formation Gross fixed capital formation Changes in stocks Exports of goods and services Imports of goods and services (-)
GROSS DOMESTIC PRODUCT	GROSS DOMESTIC PRODUCT

(1) Output can be valued at (a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

(2) The item "taxes on products, net" will include in case (a) all taxes on products, net
(b) only taxes on imports, net
(c) only taxes on imports and VAT,net

II. DISTRIBUTION AND USE OF INCOME ACCOUNT

uses	resources
Final consumption expenditure/ / actual final consumption	GROSS DOMESTIC PRODUCT Compensation of employees, net (from the rest of the world) Property income, net (from the rest of the world)
	GROSS NATIONAL INCOME Consumption of fixed capital (-)
	NATIONAL INCOME, NET Current taxes on income, wealth etc., net (from the rest of the world) Other current transfers, net (from the rest of the world)
NATIONAL SAVING, NET	
NATIONAL DISPOSABLE INCOME, NET	NATIONAL DISPOSABLE INCOME, NET

III. ACCUMULATION ACCOUNTS

III.1.and 2. CAPITAL AND FINANCIAL ACCOUNTS

changes in assets	changes in liabilities and net worth
Gross capital formation	NATIONAL SAVING, NET
Gross fixed capital formation	Capital transfers, net (from the rest of the world)
Changes in stocks	
Consumption of fixed capital (-)	
Net purchases of land and other non-produced ass	
Net acquisition of financial assets	++++++++++++++++
Net incurrence of liabilites (-)	CHANGES IN NET WORTH, DUE TO (NATIONAL) SAVING, NET, AND (EXTERNAL) CAPITAL TRANSFERS

III.3. OTHER CHANGES IN ASSETS ACCOUNT

changes in assets	changes in liabilities and net worth
Other volume changes in assets and liabilities	Revaluation of liabilities
Revaluation of assets	
Non-financial assets	
Produced assets	
Non-produced assets	CHANGES IN NET WORTH, DUE TO
Financial assets	OTHER CHANGES IN VOLUME OF ASSETS
	NOMINAL HOLDING GAINS (+)/LOSSES (-)

IV. BALANCE SHEETS

IV.1. OPENING BALANCE SHEET

assets	liabilities
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	
Financial assets	
	NET WORTH

IV.3 CLOSING BALANCE SHEET

assets	liabilities
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	
Financial assets	
	NET WORTH

V.I/II CURRENT EXTERNAL TRANSACTIONS ACCOUNT

uses	resources
Imports of goods and services	Exports of goods and services
	Compensation of employees, net receivable
	Taxes minus subsidies on production and imports net receivable
	Property income, net receivable
	Current taxes on income, wealth etc. net receivable
	Other current transfers, net receivable
CURRENT EXTERNAL BALANCE	

V.III EXTERNAL ACCUMULATION ACCOUNTS

V.III.1.and 2. CAPITAL AND FINANCIAL ACCOUNTS

changes in assets	changes in liabilities and net worth
Net purchases of land and other non-produced assets *)	CURRENT EXTERNAL BALANCE Capital transfers, net receivable
Net lending/net borrowing of the nation	
Net acquisition of external financial assets	++++++++++++++++++
Net incurrence of external liabilities (-)	CHANGES IN NET WORTH DUE TO CURRENT EXTERNAL BALANCE AND NET CAPITAL TRANSFERS

V.III.2. OTHER CHANGES IN ASSETS ACCOUNT

changes in assets	changes in liabilities and net worth
Other volume changes in assets and liabilities	Revaluation of external liabilities
Revaluation of external financial assets	
	CHANGES IN NET WORTH, DUE TO OTHER CHANGES IN VOLUME OF ASSETS NOMINAL HOLDING GAINS (+)/LOSSES (-)

*) This item never covers land in the case of external transactions

V.IV. EXTERNAL ASSETS AND LIABILITIES ACCOUNT

V.IV.1. OPENING BALANCE SHEET

assets	liabilities
Financial external assets	External liabilities
	NET EXTERNAL FINANCIAL POSITION OF THE NATION

V.IV.3 CLOSING BALANCE SHEET

assets	liabilities
Financial external assets	External liabilities
	NET EXTERNAL FINANCIAL POSITION OF THE NATION

3.7. Population and employment

(some para. to be inserted later on and may be a simplified table)

Section 4. Applying the central framework in a flexible way

279. The central system presented in this chapter involves a coherent conceptual and accounting framework. Emphasis has been put on the links between the various elements of the integrated System in order to depict its structure in a simple but complete way. That presentation does not imply any kind of order of priority or frequency when implementing national accounts. Priorities in compiling national accounts are a matter of statistical policy. No universal recommendation can be made. Some indications relating to various circumstances will be provided for in the relevant Handbooks. Similarly, the accounting structure does not mean that in all cases results have to be presented exactly as they stand in this one or other chapters. A country may choose to publish mainly time series, to select some accounts or aggregates, etc. However, attention needs to be drawn to the following point. Many users face difficulties in getting full understanding of the conceptual and practical links between the various parts of the system. From this point of view, using the kind of presentation followed in the integrated economic accounts for the nation is advisable, with the appropriate adaptations to a country's circumstances and needs. In general the System has to be looked at in a consistent but flexible way.

280. According to analytical requirements and data availability, emphasis put on various aspects may vary in the context of the integrated system. This can be done in general by using the System's classifications of institutional sectors, industries, products, transactions (including the complementary classification of transactions), the sequence of accounts, etc. at various levels of detail including additional ones, by retaining various methods of valuation, different priorities for various parts of the accounts and different frequencies, by rearranging the results, introducing some additional elements etc.

4.1 Detailed analysis of the household sector

281. The household sector excluding non-profit institutions serving households is a complex one because it covers at the same time productive activities and domestic ones of the households which constitute, each of them, a single institutional unit. Disposable income, saving and net worth refer to the institutional unit as a whole and there is no way, by definition, of breaking them down between a pure enterprise component and a pure domestic component. Above all, the household sector is heterogeneous, it covers households which have different demographic, economic and social characteristics and live in various conditions. Important differences exist as to their level of income and wealth and their pattern of consumption, their economic behaviour in general. Thus if a global account for the household sector, including or preferably excluding non-profit institutions, is very useful, it is not sufficient for in-depth analysis of the household conditions and the functioning of the economy as a whole.

282. For a deepened analysis of the economic and social conditions of the population, a detailed approach to the household sector is absolutely necessary. This may be done both in terms of deconsolidating the household sector between sub-sectors and adapting the way households activities are portrayed in the sequence of accounts and the classification of transactions to specificities of

this sector. Of course, the precise content to be done to the household sector accounts depends from the particular circumstances and needs of a given country. Only some general indications are given here (they are developed a bit in chap. XIII), in order to help people when trying to build up the precise format of their household accounts.

4.1.1 Deconsolidating the household sector

283. The classification of household sub-sectors included in the classification of institutional sectors is a broad one with only four main sub-sectors, the last one being in turn subdivided between three components:

- employers
- own account workers
- employees
  - recipients of property and transfer income
    - recipients of property income
    - recipients of pensions
    - recipients of other transfers.

284. Households, are allocated to these sub-sectors according to the socio-economic characteristics of the reference person, who would normally provide the main source of income.

285. Of course, other aspects of these household characteristics are important, like for the three first sub-sectors the industry of origin of their income. However, as it would be difficult to elaborate a detailed classification at the world level, this task has been left open to countries, eventually on the basis of regional arrangements. Such more detailed disaggregation could for example distinguish for employers and own-account workers the type of activity in which they are engaged, in terms of kind of industry (the distinction between agriculture, manufacturing industry and construction, services is specially relevant) and type of enterprise (engaged in formal or informal activities; size of the enterprise). For employees, various levels of skills may be considered, the main categories of economic activities in which they work, etc. In all cases, the rural/urban distinction may be fundamental.

286. As an illustration, the possibilities are summarized in the chart below.

SUB-SECTORING OF HOUSEHOLDS

SOCIO-ECONOMIC STATUS	ECONOMIC ACTIVITY	TYPE OF ENTERPRISE	SKILL	LOCATION
EMPLOYERS	agriculture industry services	formal/ informal size		urban/ rural
OWN-ACCOUNT WORKERS	agriculture industry services	formal/ informal		urban/ rural
EMPLOYEES	agriculture industry services		high medium low	urban/ rural
RECIPIENTS OF PROPERTY AND TRANSFER INCOME PROPERTY PENSIONS OTHER TRANSFERS				urban/ rural

4.1.2 Specifying the household accounts

287. The accounting structure of the System pays great attention to income distribution and redistribution, including redistribution in kind. So it fits directly the needs of the household sector analysis. However, additional attention may be given to some transactions or balancing items which are of particular relevance in the case of the households in order to give more information on them. Here again, some indications are given as to the orientations which may be followed.

288. In the analysis of primary income received, mixed income and compensation of employees deserve special attention. The first one may show the industry of origin distinguishing also between formal and informal activities, eventually between modern and traditional ones. The second one may be broken down by kind of labour, according to skill, education, age, sex, and/or industry of employment.

289. Monetary transactions and transactions in kind may be distinguished in various parts of the accounts, especially for final consumption and capital formation. Doing this, a concept of discretionary income may be introduced which relates only to that part of income on the use of which households actually have to take a decision.

290. These approaches are shown below, as a matter of illustration:

Households account completed

Primary income

Mixed income

- by industry of origin
- according to the formal/informal distinction
- according to the modern/traditional distinction

Compensation of employees received

- by industry of origin
- by kind of labour (skill, education, age, sex)

Secondary income

Social benefits in cash

- by type of risk covered

Other miscellaneous current transfers

of which

- transfers between households
- remittances from family members living abroad

Disposable income

- discretionary disposable income 11/
- disposable income in kind

Social benefits in kind

- by type of risk covered

Adjusted disposable income

- discretionary disposable income
- disposable income in kind
- social transfers in kind from Government/NPI

Final consumption expenditure

- purchases net
- bartered consumption goods and services
- insurance service charge
- implicit service charge for financial intermediation
- in kind
  - own account consumption
    - subsistence economy
    - services of owner occupied dwellings
    - domestic services
    - other

11/ Discretionary disposable income is defined bottom-up, as the sum of final consumption expenditure, except the in kind components, from one side, saving except own-account fixed capital formation and changes in stocks of finished goods and work in progress from the other side.

- compensation of employees in kind
- transfers in kind from non-government/PNI origin

Changes in stocks

of which: changes in stocks of finished goods and work in progress

Gross fixed capital formation

- purchases (net)
  - residential buildings
  - other
- battered capital goods
- in kind
  - own account fixed capital formation
    - residential buildings
    - other
  - capital transfers received in kind

291. In general nothing prevents a compiler from decomposing a given item according to a criterion that is not included in the System if this criterion does not conflict with the logic of the System. For instance, disposable income or adjusted disposable income may be studied according to size of income of households.

4.2 Some other needs

292. Great attention is paid in the system to the public sector. The institutional sub-sectors may be rearranged in order to put altogether the sub-sectors of general government, and the public sub-sectors of non-financial corporations and financial corporations. The accounts for the public sector may be consolidated in order to show systematically transactions between public and private sectors and with the Rest of the World (by separating out the external transactions of the public sector). Foreign controlled non-financial and financial corporations may be grouped in order to show separately their transactions and the ones of the national private sector(s).

293. Another possibility of using the flexibility of the central framework is to give more prominence to key sectors, like the oil sector or the banking sector or the exporting mining activities or the main exporting crops (coffee for example), which in some circumstances determine the economy's external transactions and equilibrium in general. Accounts for such a sector/sectors may be isolated, from the production account to balance-sheet, in order to show its (their) relation(s) with other domestic sectors and the Rest of the World. For petroleum, for example, this means separating out this sector from other non-financial corporations, petroleum industries and products from other products, primary income flows and transfers connected with oil activities from others.

294. As to external transactions, the System also gives room for more complete analysis. The Rest of the World account may be subdivided according to various groupings of countries, for example, the OECD or the European Economic Community or the Andean Pact or OPEC countries. If a multiple exchange rates system exists in a given country, showing separately the implicit taxes and subsidies such a system generates is analytically meaningful. If external debt problems are important, again it is worth indicating separately flows connected with arrears and debt reorganization.

295. In conditions of high inflation, in addition to greater attention to external transactions which presumably is to be paid, certain economic aspects are thrown into sharp relief. The meaning of current values on a yearly basis becomes questionable. In order to get significant figures, some transactions have probably to be recorded on a monthly basis, transactions in general may have to be expressed at constant purchasing power of the currency at a certain point of the year in order to avoid distorting the economic ratios when inflation and transactions are not evenly distributed over time. Volume measures for goods and services become even more important, but it is necessary to change more frequently the base-period and analyse carefully changes in relative prices. When time lags occur between intermediate consumption, harvests and deliveries, the time of harvesting no longer may approximate the time of production which has to be recorded progressively at the times of inputs and added to stocks. In general time lags between production and deliveries or purchases and resales or uses by producers give rise to difficulties in estimating and interpreting changes in stocks. Measurement of holding gains and losses in general deserves careful scrutiny.

296. When using the System for short-term analysis, quarterly accounts are broadly used. Of course, no country establishes the complete system, including balance-sheets, for every quarter. The coverage of quarterly accounts vary very much from country to country, consisting of a calculation of GDP only in some cases, or trying to cover most of current accounts and capital and financial accounts at the other extreme. Apart from selecting some parts of the System and levels of detail and elaborating the concept of output, quarterly accounts do not necessitate in general adapting the conceptual framework.

297. The case of regional accounts is different. Here again no country establishes the complete system for every region. However trying to establish even partial regional accounts gives rise to a number of conceptual problems and of course to many problems of measurement. For example, transactions which may not be allocated between the various establishments of a multi-establishment corporation, this is the case for most property income, are not strictly speaking regionalizable. This means that by definition multiregional institutions units may not be broken down in a number of regional institutional units. If all transactions of such units are actually located by region according to some rule of thumb, this implies a conceptual adaptation of the System. These types of difficulties exist for multiregional corporations and for central government. In the latter case for example, interest on the public debt payable by central government may not be located (even when the same interest is locatable when receivable by other units).

298. These difficulties explain that in most cases regional accounts are restricted to recording production activities by industry (with conceptual problems arising for locating some of them, like transportation and communication) and more complete accounts for institutional sectors in which the institutional unit may be located (households and local and state government). Establishing accounts for goods and

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services and input-output tables by region does not raise insoluble conceptual problems, deliveries to and from other regions being treated as exports and imports of course, but very difficult practical ones in the absence of a sophisticated system of transport statistics.

299. Trying to treat the regional economy as a near-complete autonomous economic space would require a lot of adaptation of the national accounts framework.

300. All questions touched upon in section IV are further elaborated in chapter XIII.

PART II. A BROADER VIEW OF THE SYSTEM

301. In addition to what is included in the central framework national accounts may be extended to satellite accounts in order to cover more completely fields or assets which are not fully developed in the central framework, including the introduction of complementary or alternative concepts, etc. Micro-macro links introduce another dimension along which analysis may be deepened. Two short sections are devoted succeedingly to these topics. A last section comments briefly on the links between the SNA and other statistical frameworks.

Section 1. Introducing satellite accounts

302. In the last section of part I, attention was drawn to special emphasis put on various aspects in the context of describing the economic process as a whole. Doing this, it is sometimes necessary to refer to some complementary elements, like household discretionary income.

303. For certain types of analysis however the necessary complements are wider in scope, they may imply alternative concepts and definitions and/or necessitate kinds of presentation focusing on certain topics. In such cases, working with the central framework, even in a flexible way, is not sufficient. When conceptually allowable, it could lead to overburdening the central framework with too many details. Above all, some requirements may be in conflict with the central conceptual framework and its architecture.

304. For example, one may think of enlarging the concept of production, by covering for example services members of a given household render to other members of this household, like housekeeping, or enlarging the concept of capital formation to consumer durable or human capital. In such cases, the economic process itself is differently depicted.

305. In other types of analysis, the intention is not to use alternative economic concepts, but to focus on a certain field or aspect of economic and social life, in the context of national accounts but without covering at the same time the rest of the economy. The approach here is to make apparent and to describe more in depth something which is hidden in the accounts of the central framework or surfaces in a limited number of points.

306. Tourism is a good case here. Various aspects of producing and consuming activities connnected with tourism may appear when looking to detailed classifications of activities, products, purposes. In general however specific tourism transactions and purposes will not even appear separately, the main

exception being for that part of tourism expenditure which is recorded under exports and imports of services, if an appropriate breakdown of the latter is shown. In order to show tourism in a national accounts framework and to derive meaningful aggregates, it is necessary to make a choice between two approaches. Either one tries to subdivide all elements in the accounts of the central framework in order to get the required figures for tourism, but the price to pay is overburdening and imbalancing the various components of the accounts. Or one elaborates a specific framework for tourism. In the latter case, the only feasible one actually, it is in addition possible to adapt various classifications and to measure additional aggregates, like national expenditure on tourism which may cover intermediate consumption as well as final consumption.

307. Environment is another typical case where it is necessary to build up a specific complementary framework in order to exhibit the relations between economic activities and the environment. It would thus be possible to extract figures which are not shown separately in the central accounts: expenditures for environmental protection, production and use of goods and services connected with environmental protection. In addition, other aspects of the relations with the environment may be shown: the output of waste and various pollutants by industries and consumption activities, the depletion of subsoil resources, the changes in quantity and quality of at least some natural assets, etc. More ambitiously, attempts could be made in the direction of an accounting framework for national wealth in general.

308. In fact it appears that a number of very important fields of economic and social concerns, like education and health, may benefit a lot from building up a framework which might accommodate at the same time elements which are explicitly or implicitly included in the central accounts, complementary elements (either monetary or in physical quantities) and even alternative concepts, definitions, classifications and presentations. In all cases however the links with the central framework are made explicit, a number of elements are in common and contradictory features, if any, are not introduced by chance but as the result of explicitly taking into account various ways of looking at reality.

309. Those special constructs, that are semi-integrated with the central System, are called satellite accounts (see chap. XIV).

Section 2. Looking at micro/macro links

310. The System of national accounts, aiming at representing the overall economic process is, in first instance, a macro-economic framework. However, in order to provide a basis for richer analysis, it is in fact a meso-economic framework, each macro element being subdivided between, or the result of aggregation of, a variable number of more detailed elements. For example a country may retain in its national accounts from 10 to 100 or more industries, some tens of sub-sectors of non-financial corporations by kind of economic activity, from 10 to 400 products, from 4 to 10 sub-sectors of households and so on. A more or less complete System of National Accounts of that kind provides users with a wide data-base for economic analysis, model building etc.

311. Yet analysts are increasingly interested in linking meso-economic analysis of the type which can be based on national accounts and analysis which may embrace the variety of micro units that of course disappear behind the average figures even at the meso level. Computing facilities now do permit the management and use of data bases which include numerous individual units (households or enterprises). In some

cases those data bases may spread over a series of years during which the same units are sequentially followed. Of course not all analysis of this type need to be likeable with meso- and macro-economic approaches, but some do require this possibility (for example, interpreting the global household saving ratio may necessitate taking into consideration the age and socio-economic structure of the population, its rural/urban distribution etc.).

312. In addition to users requirements, national accounts compilers too need to master links between data collected at the micro level and meso/macro figures they elaborate in order to make good estimates and to interpret correctly their results.

313. If national accounts resulted directly from aggregating exhaustive book figures which exactly fitted all national accounting requirements, the situation would be an ideal one. In fact, it is far from being so.

314. As the central framework covers the economy as a whole and all economic agents, its integrated set of concepts, definitions, classifications, accounts, accounting rules and valuations methods needs to apply to all parts of the central System. Of course, the System takes into consideration the main specificities of economic agents, for instance when grouping institutional units in sectors or sub-sectors or designing an entrepreneurial income account for market producers or a redistribution of income in kind account for government and households. However, some conceptual requirements of meso/macro economic representation, due to the necessity of getting meaningful results at those levels, may conflict with micro representation. Moreover specificities of micro economic agents in a number of cases are not mutually compatible.

315. Above all, not all economic agents keep books, these books are not always available to compilers and not totally compatible between each other, the way they record flows may differ from national accounts requirements, they may include casual or voluntary errors, time lags, etc. In addition book data are, except in a few cases probably, not directly collected by statisticians as complete sets of micro-economic accounts but come through statistical questionnaires, tax return forms, partial data bases, etc.

316. For economic agents which do not keep books, like households in general, the problems are of course a bit different. They refer to the difficulties of on the ground observations. There is no prior recording of flows. Data are collected either through household sample surveys or come from book data or surveys results concerning other units, like government or market producers.

317. Fortunately, problems are normally less difficult in the case of some very important institutional units, like central government and at least big local governments, social security funds, financial corporations and possibly some non-financial corporations (the public ones at least). Here generally book or near book data are available and may be used directly by compilers.

318. As a result of the above-mentioned features, micro/macro links are usually rather complex as regards concepts and definitions on one hand, figures on the other. Basic data, once they have gone through the adequate statistical process, have to a certain extent to be reclassified in order to approximate in a better way national accounts categories. This reclassification process, which may take place at the level of individual units, does not in all cases permit exact adaptation to the national accounts conceptual framework. Further adjustments are necessary,

very often when data have already been aggregated in a certain way (of course there is no other possibility when aggregated data only are available), because doing this for individual corporations for instance would be artificial (if it is necessary for example to separate interest from commissions or the service charge component of interest). Then some figures may have to be re-estimated, like consumption of fixed capital. Tax evasion ought to be estimated and some figures revalued as a consequence. Next, data coming from various economic units are checked and reconciliated, mission data are indirectly estimated, etc. Again these operations are normally not feasible at the level of every individual unit.

319. To sum up, three types of cases are to be distinguished. In the first one, micro/macro links may be completely mastered at the level of individual units. Starting from basic data one can follow the full process of adjusting micro-data at this level. This case corresponds to the fortunate situations which were referred to above.

320. The second situation refers to units which do not keep books at all (households in general) or only partial ones (certain unincorporated enterprises). Sources of data are mainly surveys, administrative registers and other units' accounts. Figures in those cases are global or semi-global ones and all adjustments from basic data to national accounts estimates cover households as a whole or group of households. Micro/macro links are essentially conceptual in nature, figures themselves are discontinuous. Individual data files may be used in connection with national accounts data in order to go deeply into some types of analysis. The nearest the micro and macro conceptual frameworks are, the easiest these interlinked analysis may be done.

321. The third case covers numerous units which keep books (small government units, non-financial corporations or similar enterprises, but for which micro/macro links may be followed at the level of individual units only until a certain state in the adjustment process). Beyond this point, adjustments either conceptual or quantitative ones are made at the meso level of aggregation retained for establishing national accounts. So discontinuities in concepts and figures may be located somewhere in between the micro and the macro level. It is advisable to build up at this point an intermediate framework or system which allows reorganizing micro-data according to concepts and definitions that are nearer to the ones of the central framework, while keeping in touch with basic business data. Individual data bases following this intermediate System, though not fully integrated in the central accounts, may be used in connection with them. Moreover they are useful per se because first they are more oriented towards economic analysis than business accounts themselves, second they result from a certain process of standardization. Book-keeping standardization of course facilitates a lot of all the work on basic statistics and national accounts, including the building of intermediate systems which may be based on such standards. In many instances book-keeping standardization is a basic prerequisite if one wants to master micro/macro links. Various aspects of micro/macro links are dealt with in the relevant Handbooks.

Section 3. Links between SNA and other statistical frameworks

322. The System of National Accounts is a tool for trying to get conceptual consistency in economic statistics because it covers all aspects of economic life in an integrated manner. Through the SNA conceptual framework it is for instance possible to link statistics on supply and use of goods and services, institutional

sectors and industries, income generation and distribution of income, income and accumulation, flows and stocks, etc.

323. There may exist however conflicts in some circumstances between consistency requirements and specific statistical approaches in various fields or for certain variables. Statistical co-ordination has to balance permanently search for homogeneity against the richness of specificities. Homogeneity, consistency facilitates using altogether different sets of statistics. Specificity allows statistics to fit closely the object they relate to. A permanent effort is needed in order to improve consistency between basic statistics, book data and national accounts figures without impoverishing the way these statistics and data are adapted to their own objectives. Fortunately in many instances specific purposes may benefit from better linkages with other data.

324. The ability of the SNA as a tool for co-ordinating economic statistics is greater with a well-developed multi-dimensional system, than with a narrow, unidimensional one. The central framework, well articulated with general-use classifications - like the International Standard Industrial Classification of all economic activities, Central production classification and, through it, the harmonized System, Classification of functions of government - offer a wide range of possibilities. Moreover satellite accounts and intermediate Systems may extend, with additional degrees of flexibility, the possibilities of linking national accounts and various sets of statistics, including social statistics in various fields and at least part of statistics on the environment.

325. Some specialized statistical frameworks pursue objectives that are very near to SNA ones. In such cases establishing as good links as feasible is essential, in order to avoid confusing users and permit them to use jointly national accounts and specialized systems.

326. This is the case first for the Balance of Payments. The aims of the Balance of Payments and the Rest of the World accounts in SNA are identical: to record transactions between resident and non-resident units; actually the Balance of Payments is, in conjunction with customs statistics, the main source for the Rest of the World accounts. The definitions of resident and non-resident units and of the national economy are normally the same. There were however a number of differences between the SNA rev. 3 and the fourth edition of the Manual of the Balance of Payments issued by the International Monetary Fund, as to the classification of transactions and valuation of imports for example. So links between the two systems were rather complicated.

327. It is now assumed that there should be in principle no conceptual differences between the SNA and the Balance of Payments. For this purpose, some changes have been made to the SNA. The main one probably is that total imports of goods are now recorded at FOB value in the SNA as they already were in BOP. 12/ Consequently total imports of services and total exports of services are no longer distorted as they were in SNA rev. 3. Also the previous BOP treatment of reinvested earnings on direct investment has been introduced in the SNA too. Reciprocally a number of

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12/ In the detailed imports of goods by type of products, as they appear for example in the supply and use table and other input-output tables, the CIF valuation continues to be used. Global adjustments are made in order to get total imports FOB (see chap. ...).

changes are to be introduced in the BOP Manual, mainly as regards classification of transactions. In addition, many changes or adaptations made in the course of the revision process were decided upon for both frameworks. So normally only practical difficulties in BOP compilation could possibly be a source of discrepancies. However, the actual coverage of transactions, illegal ones for example, if different in the two documents, might be a source of lags.

328. Of course, BOP being a specialized tool includes additional information besides that which appears in the SNA, like total change in reserves, liabilities constituting foreign authorities' reserves or exceptional financing. In some cases, it is recommended to show as memorandum items to the SNA accounts data that are of special interest for analysing external transactions while not fitting directly in the SNA classifications. This is especially important for data on direct investment and its main components (equity, loans, other).

329. Links between general government accounts (SNA) and Government Finance Statistics (IMF) are a bit more complex. Though in both cases the objective is to analyse the government sector defined in the same way, the approaches are not totally similar. GFS follows the budget approach which is interested essentially in the analysis of current and capital receipts and expenditures by type according to a standardized budget classification. The SNA applies the same conceptual framework to all sectors, including Government. In addition to the redistributive and expenditure functions of government, it analyses its productive role in creating non-market services provided free of charge or at a nominal cost to the population. In that context, consumption of fixed capital is estimated, something which budget practices generally do not do. Debt is considered by GFS, while SNA includes an overall balance-sheet.

330. Cash-basis is considered by GFS as more realistic for analysing the governing sector and is retained for recording government transactions. The SNA uses a single criterion, the accrual basis, for all sectors, including government.

331. GFS focusing on the analysis of the government deficit/surplus retains a main concept of deficit/surplus which is calculated after adding to current and capital expenditures lending minus loans repayments. SNA net lending/borrowing is defined for government just as for other sectors. However, the present SNA retains, in an additional table, the GFS concept of overall deficit/surplus.

332. In spite of these various approaches, SNA and GFS are considered mutually supportive; they provide partly different but complementary views of the government sector. Conceptual and operational bridge tables are constructed for use by analysts and producers of the data. Such bridge tables which were rather complex between SNA rev.3 and a Manual on government finance statistics 1986 could be made simpler in the future.

333. The draft Guide to Money and Banking Statistics in International Financial Statistics issued by the MIF (December 1984) is a third statistical framework for which harmonization with the SNA is very important. Consistency in definitions of transactor and transactions at higher levels of aggregation is considered critical to the complementary use of both Systems. MBS 1986 covers only stock data; it would be desirable to have flow data consistent with these stock data. The present SNA encompasses financial flows and stocks classified by instrument, creditor sector and debtor sector (see p.   ).

334. Links with other bodies of statistics, like economic censuses or income statistics, are equally important. Like the links with the previous ones they are dealt with in detail in the relevant Handbooks.

335. A Handbook also deals with the links between the SNA and The System of statistical balances of the National Economy (MPS). The latter retains a restricted concept of production (production of goods and services linked to them and called material services). As a consequence primary income too is more restricted than in the SNA, when redistribution is wider, covering transactions related to non-material services and encompassing also financial flows which are given little emphasis. However, the 1986 version of MPS includes, outside its main conceptual framework, a balance of non-material services and indicators of income and consumption of the population which are very similar to the SNA concepts of adjusted disposable income and actual final consumption. The Handbook explains the differences between the two Systems and shows how to apply both of them in parallel.

336. Annexes are devoted to additional indications on the relationship between SNA and related system of statistics: BOP, GFS, MBS and MPS at the end of this book.

ANNEX

Other presentations of the accounts

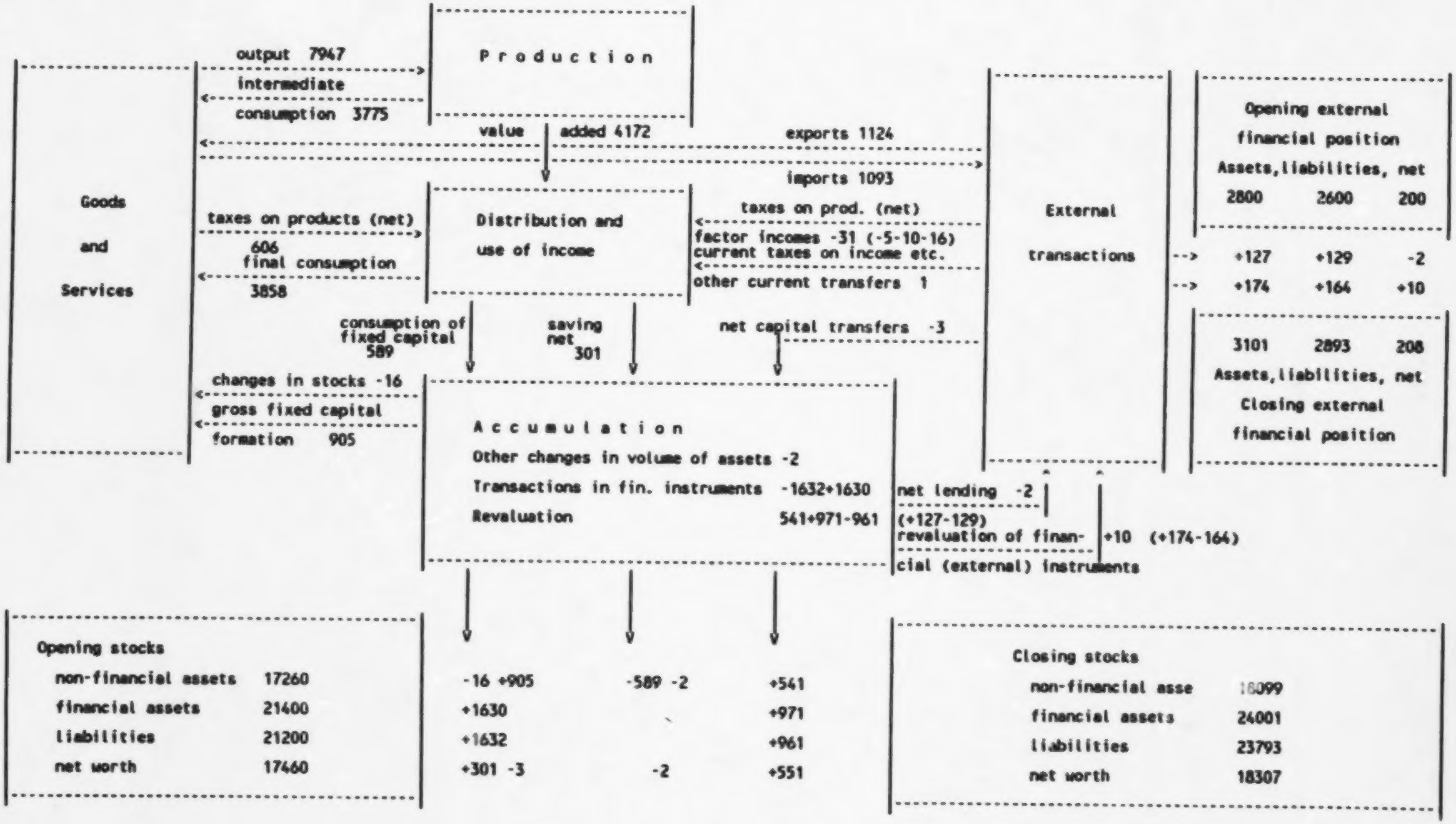
337. The SNA mainly uses the classical presentation of accounts in the form of balancing statements, which are grouped in various ways, like in the integrated economic accounts for the Nation. Other types of presentation may be used.

Diagrammatic presentation

338. The diagrammatic presentation is made using the pedagogical apparatus of boxes linked together by arrows, with indications of the nature and size of the flows and stocks represented.

339. For the economy as a whole, figures corresponding to the ones which appear in the integrated accounts for the Nation are show in the following diagram.

A diagrammatic presentation of the integrated accounts for the nation



340. To this diagram corresponds a set of equations, which are commented below.

Equations

The equalities of the System may be represented by sets of equations, that are used for example in model building.

The accounts for the Nation are shown below in equations form (the figures are the ones appearing on the above diagram):

(1) Gross domestic product at market prices = output + taxes on products (net) - intermediate consumption.

4778 = 7947 + 606 - 3775

(2) Gross domestic product at market prices = final consumption expenditure/actual final consumption + changes in stocks + gross fixed capital formation + exports of goods and services - imports of goods and services.

4778 = 3858 - 16 + 905 + 1124 - 1093

(3) Gross national income at market prices = gross domestic product at market prices + taxes on production and imports (net, receivable from abroad) + compensation of employees (net, receivable from abroad) + property income (net, receivable from abroad).

4747 = 4778 - 5 - 10 - 16

(4) National income at market prices, net = gross national income at market prices - consumption of fixed capital.

4158 = 4747 - 589

(5) National disposable income, net = national income at market prices, net + current taxes on income, wealth, etc. (net, receivable from abroad) + other current transfers (net, receivable from abroad).

4159 = 4158 + 1 + 0

(6) National disposable income, net = final consumption expenditure/actual final consumption + saving, net.

4159 = 3858 + 301

(7) Saving, net + capital transfers (net) receivable from abroad = changes in net worth due to saving and net capital transfers = changes in stocks + gross fixed capital formation - consumption of fixed capital + net purchases of non-produced assets + net lending (+)/net borrowing (-).

301 - 3 = 298 = - 16 + 905 - 589 + 0 - 2

(8) Net lending (+)/net borrowing (-) = acquisition of financial assets - incurrence of liabilities = acquisition of financial (external assets) - incurrence of financial (external) liabilities.

- 2 = 1630 - 1632 = 127 - 129

(9) Opening assets - opening liabilities = opening net worth.

38660 - 21200 = 17460

(10) Closing non-financial assets = opening non-financial assets + changes in stocks + gross fixed capital formation - consumption of fixed capital + other changes in volume of assets + revaluation.

18099 = 17260 - 16 + 905 - 589 - 2 + 541

(11) Closing financial assets = opening financial assets + acquisition of financial assets + revaluation.

24001 = 21400 + 1630 + 971

(12) Closing liabilities = opening liabilities + incurrence of liabilities + revaluation.

23793 = 21200 + 1632 + 961

(13) Changes in net worth (total) = changes in net worth due to saving and net capital transfers + changes in net worth due to other changes in volume of assets + changes in net worth due to changes in actual prices.

847 = 298 - 2 + 551

(14) Closing assets - closing liabilities = closing net worth.

42100 - 23793 = 18307

(15) Closing net worth = opening net worth + changes in net worth (total).

18307 = 17460 + 847

(16) Export of goods and services - imports of goods and services + taxes on production and imports (net, receivable from abroad) + compensation of employees (net receivable) + property income (net, receivable) + current taxes on income, wealth, etc. (net, receivable) + other current transfers (net, receivable) + capital transfers (net, receivable) = net lending (+)/net borrowing (-) = acquisition of financial (external) assets - incurrence of financial (external) liabilities.

1124 - 1093 - 5 - 10 - 16 + 1 + 0 - 3 = - 2 = + 127 - 129

(17) Net lending (+)/net borrowing (-) + revaluation of financial (external) assets - revaluation of financial (external) liabilities = changes in net external financial position = (closing financial (external) assets - closing financial (external) liabilities) - (opening financial (external) assets - opening financial (external) liabilities).

$$-2 + 174 - 164 = +8 = (3101 - 2893) - (2800 - 2600)$$

341. Equations (1) and (2) cover the production and goods and services accounts. All transactions in these equations correspond to arrows going to or from the boxes "production" and "goods and services" in the diagram.

342. Equations (3) to (6) cover the distribution and use of income accounts and the corresponding box in the diagram. The aggregates are not shown directly in the latter, but they are derived easily according to the relevant equations.

343. Equations (7), (8) and (13) cover the accumulation account(s) and the box "accumulation" in the diagram.

344. Equations (9) to (15) correspond to opening and closing balance-sheets and changes in balance-sheets. They cover the boxes "opening stocks" and "closing stocks" and the changes in between as they are shown in the diagram. Those changes are identical to the content of equations (7), (8) and (13), the revaluation being shown separately for the three types of assets and liabilities.

345. Equations (16) and (17) contain the external transactions (box "external transactions" in the diagram) presented from the point of view of the Nation and the external financial position of the Nation. The opening and closing positions and the changes in between are shown in the diagram.

346. Thus the diagram may be read by reading the equations and the equations are illustrated by the diagram itself.

347. Similarly, the various parts of the System may be presented in equations form: the full sequence of accounts for institutional sectors, the shortened sequence of accounts for industries, the transactions accounts like the goods and services account, the Rest of the World accounts etc.

Matrix presentation

348. The accounts may also be presented in matrix form. In a matrix presentation, each account is represented by a row and column pair and the convention is followed that resources/changes in liabilities and net worth are shown in the rows and uses/changes in assets in the columns. Opening and closing stocks are also recorded in pairs of rows and columns. The rows for stocks refer to opening or closing assets and the columns to opening or closing liabilities. Each transaction/stock is represented by a single entry, coded by reference to the row and column at the intersection of which it appears and the nature of the transaction is inferred from its position.

349. This form of presentation is very concise. It may be easily expanded in order to cover more aspects and details. Each entry can be interpreted as a matrix (or sub-matrix with reference to the main matrix). When introducing subdivisions of categories, rows and columns have to be added.

350. The balancing rows and columns relate not only to transactor but to other categories like transactions or assets Conversions of classification, in the analysis by purpose for instance, are easily dealt with, again by introducing additional rows and columns.

351. Though the present SNA retains straightforward accounts as the basic method of presentation, a presentation of the complete system in matrix form is also provided in an annex at the end of the book. As an illustration, a reduced matrix presentation is shown below, for the accounts of the National economy and the Rest of the World. It is worth noting that following a matrix presentation does not imply a different approach to national accounting. It is just a matter of presentation, not of substance.

352. In the matrix below, the integrated accounts for the Nation are shown. The data are basically the same than in the above diagram and set of equations except that the transactions with the Rest of the World are shown gross and the flows between resident sectors are not consolidated either. Each cell x is identified firstly by the number of the row it refers to (resources changes in liabilities and net worth) and secondly by the number of the column it is changes in assets connected with (uses 7.5a). For example, x represents disposable income, net, which is the balancing item of the Secondary distribution of income account and is therefore recorded on its use side (col. 5), then it appears as a resource of the use of income account (row 7).

353. In order to keep the matrix small but to show at the same time sufficient details, more than one flow may appear in a given cell. In this case, the relevant case is completed by a letter. So, for instance, x 1.9a refers to opening stocks non-financial assets of the Nation and x 1.9b to its financial assets. Of course, this is purely a matter of convention in this presentation. It could have been possible either to compact the content of each cell in one item or to introduce the necessary number of additional rows and columns. The code of each matrix element is indicated after the matrix. In order to facilitate the use of the matrix, two versions of the explanation of the matrix elements are presented. The first one follows the order of the systematic of the accounts. The second one follows a lexicographic order. Note that for sake of simplicity the term "changes in net worth" has been replaced by the indication of the specific reason causing the change.

354. In order to explain more concretely the content of this matrix, the latter is also shown below with actual figure inside.

355. Column and row 2 show the goods and service account: output + taxes on products (net) + imports = intermediate consumption + exports + final consumption + changes in stocks + gross fixed capital formation (7947 + 606 + 1093 = 3775 + 1124 + 3858 + 905 - 16).

356. The goods and services account is shown with uses and resources in reverse order, reflecting these transactions in the accounts of sectors.

Simplified matrix presentation of the integrated accounts for the nation				Balance sheets opening stocks	Goods & Services account	Production account	Distribution of income account		Current external transactions account	Use of income account	Accumulation accounts				Balance sheets closing stocks
							Primary	Second.			National Economy		Rest of the World		
											Capital transfers	Assets	Capital transfers	Assets	
				1	2	3	4	5	6	7	8	9	10	11	12
Balance sheets opening stocks			1									17260 21400		2600	
Goods & services account			2			3775			1124	3858		905 -16			
Production account			3		7947 606										
Distribution of income account	Primary inc. distrib.		4			4189 589	3762		201						
	Second. inc. distrib.		5				4158 589	2829	86						
Current external transactions account			6		1093		232	85							
Use of income account			7					4159 589							
Accu-mulation accounts	National Economy	Net worth	8	17460						301 589	-4	-589 -2 551	1		18307
		Liabilities	9	21200								1503 797		129 164	23793
	Rest of the world	Net worth	10	-200					-1		4	0 -10 0	-1		-208
		Liabilities	11	2800								127 174			3101
Balance sheets closing stocks			12									18099 24001		2893	

TABLE 2.9
Simplified matrix presentation of the integrated accounts for the nation

				Balance sheets opening stocks	Goods & Services account	Production account	Distribution of income account		Current external trans-actions account	Use of income account	Accumulation accounts				Balance sheets closing stocks
							Primary	Second.			National Economy		Rest of the World		
											Capital transfers	Assets	Capital transfers	Assets	
				1	2	3	4	5	6	7	8	9	10	11	12
Balance sheets opening stocks			1									x1.9a x1.9b		x1.11	
Goods & services account			2			x2.3			x2.6	x2.7		x2.9a x2.9b			
Production account			3		x3.2a x3.2b										
Distribution of income account	Primary inc. distrib.		4			x4.3a x4.3b	x4.4		x4.6						
	Second. inc. distrib.		5				x5.4a x5.4b	x5.5	x5.6						
Current external transactions account			6		x6.2		x6.4	x6.5							
Use of income account			7					x7.5a x7.5b							
Accu-mulation accounts	National Economy	Net worth	8	x8.1						x8.7a x8.7b	x8.8	x8.9a x8.9b x8.9c	x8.10		x8.12
		Liabili-ties	9	x9.1								x9.9a x9.9b		x9.11a x9.11b	x9.12
	Rest of the world	Net worth	10	x10.1					x10.6		x10.8	x10.9a x10.9b x10.9c	x10.10		x10.12
		Liabili-ties	11	x11.1								x11.9a x11.9b			x11.12
Balance sheets closing stocks			12									x12.9a x12.9b		x12.11	

EXPLANATION OF THE MATRIX ELEMENTS:

x3.2a	Output
x3.2b	Taxes on products (net)
	Intermediate consumption
x2.3	Intermediate consumption
	Domestic product
x4.3a	DOMESTIC PRODUCT, NET
x4.3b	Consumption of fixed capital
	Imports/Exports
x2.6	Exports of goods and services
x6.2	Imports of goods and services
	Final consumption
x2.7	Final consumption
	Gross capital formation
x2.9a	Gross fixed capital formation
x2.9b	Changes in stocks
	Primary income flows
x4.4	Primary income flows (except taxes on products, net) between resident units
x4.6	Primary income flows from the rest of the world
x6.4	Primary income flows to the rest of the world
x5.4a	NATIONAL INCOME, NET
x5.4b	Consumption of fixed capital
	Transfers of redistribution
x5.5	Transfers of redistribution between resident units
x5.6	Transfers of redistribution from the rest of the world
x6.5	Transfers of redistribution to the rest of the world
x7.5a	DISPOSABLE INCOME, NET
x7.5b	Consumption of fixed capital
x8.7a	SAVING, NET
x8.7b	Consumption of fixed capital
x10.6	Current external balance
	Capital transfers
x8.8	Capital transfers, payable (-), national economy
x8.10	Capital transfers, receivable national economy
x10.8	Capital transfers, receivable, rest of the world
x10.10	Capital transfers, payable (-), rest of the world
x8.9a	Consumption of fixed capital (-)
x10.9c	Net purchases of land and other non produced assets
	Financial assets and liabilities
x9.9a	Net acquisition of fin. assets/ incurrence of liabilities between resident units
x9.11a	Net acquisition of fin. assets of the rest of the world /incurrence of liabilities of the national economy
x11.9a	Net acquisition of fin. assets of the national economy /incurrence of liabilities of the rest of the world

Other changes in volume of assets

x8.9b	Other changes in volume of assets (net), national economy
x10.9a	Other changes in volume of assets (net), rest of the world

Revaluation

x8.9c	Revaluation of assets and liabilities (net), national economy
x9.9b	Revaluation of financial assets/liabilities between resident units
x9.11b	Revaluation of financial assets of the rest of the world/ liabilities of the national economy
x11.9b	Revaluation of financial assets of the national economy/ liabilities of the rest of the world
x10.9b	Revaluation of financial assets and liabilities (net), rest of the world

Balance sheets

Opening stocks:

x1.9a	Opening stocks non-financial assets, national economy
x1.9b	Opening stocks financial assets, national economy
x1.11	Opening stocks financial assets, rest of the world
x9.1	Opening stocks liabilities, national economy
x11.1	Opening stocks liabilities, rest of the world
x8.1	Opening stocks net worth, national economy
x10.1	Opening stocks net worth, rest of the world

Closing stocks:

x12.9a	Closing stocks non-financial assets, national economy
x12.9b	Closing stocks financial assets, national economy
x12.11	Closing stocks financial assets, rest of the world
x9.12	Closing stocks liabilities, national economy
x11.12	Closing stocks liabilities, rest of the world
x8.12	Closing stocks net worth, national economy
x10.12	Closing stocks net worth, rest of the world

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x1.9a	Opening stocks non-financial assets, national economy
x1.9b	Opening stocks financial assets, national economy
x1.11	Opening stocks financial assets, rest of the world
x2.3	Intermediate consumption
x2.6	Exports of goods and services
x2.7	Final consumption
x2.9a	Gross fixed capital formation
x2.9b	Changes in stocks
x3.2a	Output
x3.2b	Taxes on products
x4.3a	DOMESTIC PRODUCT, NET
x4.3b	Consumption of fixed capital
x4.4	Primary income flows (except taxes on products, net) between resident units
x4.6	Primary income flows from the rest of the world
x5.4a	NATIONAL INCOME, NET
x5.4b	Consumption of fixed capital
x5.5	Transfers of redistribution between resident units
x5.6	Transfers of redistribution from the rest of the world
x6.2	Imports of goods and services
x6.4	Primary income flows to the rest of the world
x6.5	Transfers of redistribution to the rest of the world
x7.5a	DISPOSABLE INCOME, NET
x7.5b	Consumption of fixed capital
x8.1	Opening stocks net worth, national economy
x8.7a	SAVING, NET
x8.7b	Consumption of fixed capital
x8.8	Capital transfers, payable (-), national economy
x8.9a	Consumption of fixed capital (-)
x8.9b	Other changes in volume of assets (net), national economy
x8.9c	Revaluation of assets and liabilities (net), national economy
x8.10	Capital transfers, receivable national economy
x8.12	Closing stocks net worth, national economy
x9.1	Opening stocks liabilities, national economy
x9.9a	Net acquisition of fin. assets/ incurrence of liabilities between resident units
x9.9b	Revaluation of financial assets/liabilities between resident units
x9.11a	Net acquisition of fin. assets of the rest of the world /incurrence of liabilities of the national economy
x9.11b	Revaluation of financial assets of the rest of the world/ liabilities of the national economy
x9.12	Closing stocks liabilities, national economy
x10.1	Opening stocks net worth, rest of the world
x10.6	Current external balance
x10.8	Capital transfers, receivable, rest of the world
x10.9a	Other changes in volume of assets (net), rest of the world
x10.9b	Revaluation of financial assets and liabilities (net), rest of the world
x10.9c	Net purchases of land and other non produced assets
x10.10	Capital transfers, payable (-), rest of the world
x10.12	Closing stocks net worth, rest of the world
x11.1	Opening stocks liabilities, rest of the world
x11.9a	Net acquisition of fin. assets of the national economy /incurrence of liabilities of the rest of the world
x11.9b	Revaluation of financial assets of the national economy/ liabilities of the rest of the world
x11.12	Closing stocks liabilities, rest of the world
x12.9a	Closing stocks non-financial assets, national economy
x12.9b	Closing stocks financial assets, national economy
x12.11	Closing stocks financial assets, rest of the world

357. Row and column 3 contain the production account for the National Economy as a whole: output + taxes on products (net) = intermediate consumption + net domestic product + consumption of fixed capital (7947 + 606 = 3775 + 4189 + 589). Of course, the sum of net domestic product and consumption of fixed capital is equal to gross domestic product at market prices (4778). All balancing items actually are shown net, the consumption of fixed capital appearing also in each relevant cell.

358. Row and column 4 refer to the primary distribution of income account. Along the row, are shown the resources: net domestic product (4189), consumption of fixed capital (589), primary income flows, except taxes on products, net, between resident units (3762) and primary income flows from the Rest of the World (201). In column are the uses, primary income flows, except taxes, on products, net, between resident units (3762), primary income flows to the Rest of the World (232), net national income (4158) and consumption of fixed capital (589). The sum of net national income and consumption of fixed capital is gross national income at market prices (4747).

359. Row and column 5 include the secondary distribution of income account. The resources are along the row: net national income (4158), consumption of fixed capital (589), transfers of redistribution between resident units (2829) and transfers of redistribution from the Rest of the World (86). In column are the uses: transfers of redistribution between resident units (2829), transfers of redistribution to the Rest of the World (85), net disposable income (4159) and consumption of fixed capital (589). The sum of the last items is of course gross disposable income (4748).

360. Row and column 6 show the current external transactions of the Rest of the World: imports + primary income flows to the Rest of the World + transfers of redistribution to the Rest of the World = exports + primary income and transfers of redistribution, from the Rest of the World + current external balance (1093 + 232 + 85 = 1124 + 201 + 86 - 1).

361. Row and column 7 contain the use of income account: disposable income, net + consumption of fixed capital = final consumption + saving net + consumption of fixed capital (4159 + 589 = 3858 + 301 + 589).

362. Note that all accumulation accounts have been combined in one account in this simplified matrix, respectively for the National Economy and the Rest of the World. However, in order to show explicitly assets, liabilities, and net worth, each combined accumulation account is subdivided in two rows and two columns. Consequently these rows and columns balance by group of two: rows 8 and 9 taken together balance the corresponding columns together, the same for rows 10 and 11 and columns 10 and 11.

363. Rows and columns 8 and 9 show at the same time the opening and closing balance-sheets and the accumulation accounts of the National Economy. Row 8 refers to net worth. It shows first the opening net worth (17460); then saving (net) (301), capital transfers payable (-4) and receivable (1) appear, being equal in total to changes in net worth due to saving and net capital transfers (298 = 301 - 4 + 1). Row 8 shows also twice with opposite signs consumption of fixed capital, which has no influence on net worth. Then at the crossing of row 8 and column 9 appear changes in net worth due to other changes in volume of assets net, (-2) and changes in net worth due to revaluation of assets and liabilities, net, (551). At

the end of row 8, closing net worth is shown (18307 = 17460 + 301 - 4 + 1 + 589 - 589 - 2 + 551). Row 9 refers to the liabilities of the National Economy: opening liabilities (21200), incurrence of liabilities between resident units (1503), revaluation of liabilities between resident units (797), incurrence of liabilities to the Rest of the World (129) and revaluation of liabilities to the latter (164). Closing liabilities appear at the end (23793 = 21200 + 1503 + 797 + 129 + 164).

364. Column 8 contains capital transfers payable by the National Economy, already met (-4) and the corresponding capital transfers receivable by the Rest of the World (4 at the crossing of column 8 and 10). Column 9 relates to assets of the National Economy. It deserves careful scrutiny in order to be fully understood. Let us start with financial assets. Closing financial assets are equal to opening financial assets, plus acquisition of financial assets, between resident units and towards the Rest of the World respectively, and revaluation of financial assets again between resident units and towards the Rest of the World respectively (24001 = 21400 + 1503 + 127 + 797 + 174). Changes in non-financial assets are also fully described in column 9, but in a slightly more complex manner, which is due to the fact that the presentation of accumulation accounts is very condensed in this simplified matrix. Closing non-financial assets are equal to opening non-financial (17260) + gross fixed capital formation (905) + changes in stocks (-16) - consumption of fixed capital (-589) + other changes in volume of assets (net) which are equal to changes in net worth due to other changes in volume of assets (-2) 13/ + revaluation of non-financial assets (551 - 10 = 541). The last point deserves further explanation. In effect, the changes in net worth due to revaluation of assets and liabilities, net, (551) are equal to the revaluation of non-financial assets plus the revaluation of financial assets (797 + 174) less the revaluation of liabilities (797 + 164). This may be seen directly in the diagrammatic presentation (see p.   above): 551 = 541 + 971 - 961. Thus the revaluation of non-financial assets is by definition equal to changes in net worth due to revaluation of assets, and liabilities, net (551) less net revaluation of financial assets/liabilities (10, difference between + 971 and - 961). The net revaluation of total financial assets/liabilities is equal to the net revaluation of financial assets/liabilities towards the Rest of the World. So it appears at the crossing of column 9 and row 10 (net worth, Rest of the World). Finally, the equation for non-financial assets of the National economy is 18099 = 17260 + 905 - 16 - 589 - 2 + 541 (id est + 551 - 10).

365. Rows and columns 10 and 11 contain the balance-sheets elements and the accumulation account of the Rest of the World. Row 10 shows net worth: closing net worth is equal to opening net worth + current external balance + capital transfers receivable (column 8) - capital transfers payable (column 10) + revaluation of financial assets and liabilities, net, Rest of the World: - 208 = - 200 - 1 + 4 - 1 - 10. In row 11 are the liabilities of the Rest of the World: closing liabilities are equal to opening liabilities + incurrence of liabilities + revaluation of liabilities: 3101 = 2800 + 127 + 174. Column 10 equilibrate capital transfers payable by the Rest of the World (-1) and receivable by the National Economy from the Rest of the Wold (1). In column 11 are the financial assets of the Rest of the World: 2600 + 129 + 164 = 2893. No actual figures for items x10.9a and x10.9c are recorded in the economy under review.

13/ In the figures which are presented, this item refers only to non-financial assets.

366. The contents of rows and columns 1 and 12 have been presented by the way. Opening assets are recorded in row 1 where non-financial assets (17260) and financial assets (21400) of the National Economy and financial assets of the Rest of the World (2600) are shown. Corresponding closing assets are recorded in row 12 (18099, 24001 and 2893 respectively). Column 1 contains the opening net worth of the national economy (17460) and the Rest of the World (2800). Column 12 includes the corresponding closing stocks; net worth of the National Economy (18307) and the Rest of the World (-208), liabilities of the National Economy (23793) and the Rest of the World (3101). It is easy to verify that net worth is the difference between assets and liabilities. For example, closing net worth, National Economy is 18099 + 24001 - 23793 = 18307. Closing net worth, Rest of the World, is 2893 - 3110 = -208.

APPENDIX

CLASSIFICATION OF TRANSACTIONS, ASSETS, LIABILITIES AND INSTITUTIONAL SECTORS

Classification of transactions

I. TRANSACTIONS IN GOODS AND SERVICES

- Output
  - Market output
  - Non-market output

- Intermediate consumption

- Gross capital formation
  - Gross fixed capital formation
    - Gross fixed tangible capital formation
    - Gross fixed intangible capital formation
  - Changes in stocks

- Final consumption expenditure
  - Individual consumption expenditure
  - Collective consumption expenditure
- Actual final consumption
  - Actual individual consumption
  - Actual collective consumption

- Exports of goods and services
  - Exports of goods
  - Exports of services
- Imports of goods and services
  - Imports of goods
  - Imports of services

II. DISTRIBUTIVE TRANSACTIONS

- Compensation of employees
  - Gross wages and salaries
  - Employers' social contributions
    - Employers'actual social contributions
    - Employers' imputed social contributions

- Taxes on production and imports
  - Taxes on products
    - Value added type taxes (VAT)
    - Taxes on imports excl. VAT
      - Import duties
      - Taxes on imports excl. VAT and duties
    - Export taxes
    - Taxes on products, except VAT, import and export taxes
  - Other taxes linked to production

- Subsidies
  - Subsidies on products
    - Import subsidies
    - Export subsidies
    - Other subsidies on products
  - Other subsidies linked to production

- Property income
  - Interest
  - Distributed income of corporate enterprises
    - Dividends
      - Dividends (corporations)
      - Withdrawals from income of quasi-corporations
    - Reinvested earnings on direct foreign investment
  - Imputed property income to insurance policy holders
  - Land rent and royalties

- Current taxes on income, wealth, etc.
  - Taxes on income
  - Other current taxes

- Other current transfers
  - Social contributions
    - Actual social contributions
      - Employers' actual social contributions
      - Employees social contributions
      - Social contributions by self and nonemployed persons
      - Voluntary social contributions
    - Imputed social contributions
  - Social benefits in cash
    - Social security benefits in cash
    - Unfunded employee social benefits
    - Social assistance benefits in cash
  - Social transfers in kind
    - Social benefits in kind
      - Social security benefits, reimbursements
      - Social security benefits in kind
      - Social assistance benefits in kind
    - Individualized non-market services (not incl. in social benefits)
  - Miscellaneous current transfers
    - Net casualty insurance premiums
    - Casualty insurance claims
    - Current transfers within government
    - Current international cooperation
    - Other miscellaneous current transfers

- Capital transfers
  - Capital taxes
  - Investment grants
  - Other capital transfers

III. TRANSACTIONS IN FINANCIAL INSTRUMENTS

Gold and SDR's

Currency and deposits
- Currency
- Transferable deposits
- Other deposits

Securities other than shares
- Short-term
- Long-term

Loans
- Short-term
- Long-term

Shares and other equity

Insurance technical reserves
- Net equity of households on life insurance reserves and on pension funds
- Prepayment of premiums and reserves against unsettled claims for casualty insurance

Other accounts receivable/payable
- Trade credits and advances
- Other

IV. OTHER ACCUMULATION TRANSACTIONS

Consumption of fixed capital

Net purchases of land and other non-produced assets
- Net purchases of land and other tangible non-produced assets
- Net purchases of intangible non-produced assets

Other volume changes in assets and liabilities
- Economic appearance of non-produced assets
- Economic disappearance of non-produced assets
- Destruction of assets by non-insurable risks
  - Destruction of assets by non-insurable risks, natural catastrophies
  - Destruction of assets by non-insurable risks, political events
- Uncompensated seizures
- Adjustment of the residual value of assets

Nominal holding gains or losses (due to changes in actual prices)
- Neutral revaluation (in proportion to general price level)
- Real holding gains or losses (due to changes in relative prices)

Changes in classification and structure
- Changes in sector classification and structure
- Changes in classification of assets and liabilities

Classification of assets

- Non-financial assets
  - Produced assets
    - Stocks
      - Materials and supplies
      - Work in progress
        - Work in progress on natural growth products
        - Other work in progress
      - Finished goods
      - Goods for resale
    - Fixed assets
      - Tangible fixed produced assets
        - Residential buildings
        - Other buildings and construction works
          - Non-residential buildings
          - Other construction works
        - Equipment
          - Transport equipment
          - Machinery and equipment
        - Natural cultivated assets
          - Animals for breeding, dairy, draught, etc.
          - Timber tracts and cultivated forests
          - Plantations (orchards, vineyards, etc.)
          - Fisheries
        - Tangible artistic work
      - Intangible fixed produced assets
        - Research and development assets
        - Capitalized mineral exploration cost
        - Computer software
        - Literary artistic work
  - Non-produced assets
    - Tangible non-produced assets
      - Land
        - Land underlying buildings and works (memo item)
        - Cultivated land (other than plantations, etc.)
        - Recreational land
        - Other land
      - Subsoil assets
        - Coal, oil and natural gas reserves
        - Metallic mineral reserves
        - Non-metallic mineral reserves
      - Historical monuments
      - Antiques and other art objects (incl. precious metals and stones held by households)
    - Intangible non-produced assets

Financial assets

- Gold and SDR's

- Currency and deposits
  - Currency
  - Transferable deposits
  - Other deposits

- Securities other than shares
  - Short-term
  - Long-term

- Loans
  - Short-term
  - Long-term

- Shares and other equity

- Insurance technical reserves
  - Net equity of households on life insurance reserves and on pension funds
  - Prepayment of premiums and reserves against unsettled claims for casualty insurance

- Other accounts receivable/payable
  - Trade credits and advances
  - Other

Classification of institutional sectors

National Economy

- Non-financial corporations
  - Public non-financial corporations
  - National private non-financial corporations
  - Foreign controlled non-financial corporations

- Financial corporations
  - Central Bank
  - Other depository institutions
    - Deposit money institutions
      - Public
      - National private
      - Foreign controlled
    - Other
      - Public
      - National private
      - Foreign controlled
  - Other financial intermediaries, except insurance companies and pension funds
      - Public
      - National private
      - Foreign controlled
  - Financial auxiliaries
      - Public
      - National private
      - Foreign controlled
  - Insurance companies and pension funds
      - Public
      - National private
      - Foreign controlled

- General government

  - Central government
  - State government
  - Local government
  - Social security funds
    - Central government social security funds
    - State government social security funds
    - Local government social security funds

  - Central government *
    - Central government
    - Central government social security funds
  - State government *
    - State government
    - State government social security funds
  - Local government *
    - Local government
    - Local government social security funds

- Households

  - Households excluding non-profit institutions serving households
    - Employers
    - Own account workers
    - Employees
    - Recipients of property and transfer income
      - Recipients of property income
      - Recipients of pensions
      - Recipients of other transfers

  - Non-profit institutions serving households

- Rest of the world

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*) incl. social security funds of this level of government

Balancing items

National economy

Value added

Operating surplus
Mixed income

Entrepreneurial income

Primary income

Disposable income

Adjusted disposable income

Saving

Changes in net worth (due to saving and net capital transfers)

Net lending/net borrowing

Changes in net worth (due to other changes in volume of assets)

Changes in net worth (due to changes in actual prices)
  Changes in net worth (due to neutral revaluation)
  Changes in net worth (due to changes in relative prices)

Changes in net worth, total

Net worth

Rest of the world

External balance of goods and services

Current external balance

Changes in net worth (due to current external balance and net capital transfers)

Net lending/net borrowing

Changes in net worth (due to
  other changes in volume of assets
  changes in actual prices
    neutral revaluation
    real holding gains/losses)

Changes in net worth, total

Net worth

Main aggregates

National Expenditure

Domestic product (GDP/NDP)

Natinal income (GNI,NNI)

National disposable income

National saving

Changes in national wealth

National wealth

External balance of goods and services

Current external balance

Net lending/net borrowing of the nation

Net external financial position of the nation

0. GOODS AND SERVICES ACCOUNT

resources	uses
Output (1)	Intermediate consumption
Imports of goods and services	Final consumpt. expenditure /actual final consumption
Taxes on products (2)	Gross capital formation
Subsidies (-) (2)	Gross fixed capital formation
	Changes in stocks
	Exports of goods and services

(1) Output can be valued at (a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

(2) According to the different valuation of output, the item "taxes on products" will include:
in case (a) all taxes on products
(b) taxes on imports
(c) taxes on imports and VAT
According to the different valuation of output, the item "subsidies on products" will include:
in case (a) all subsidies on products
(b) and (c) subsidies on imports

Full sequence of accounts and balancing items for institutional sectors

uses resources

I. PRODUCTION ACCOUNT

I. Production account

uses	resources
Intermediate consumption	Output (1)

Value added, gross	

Consumption of fixed capital	
VALUE ADDED, NET	

(1) Output can be valued at (a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

II DISTRIBUTION AND USE OF INCOME ACCOUNTS

II.1. Primary distribution of income accounts

II.1.1 Generation of income account

uses	resources
Compensation of employees	----------------
	Value added, gross
Taxes on production and imports (3)	----------------
	Consumption of fixed capital
Subsidies (-) (3)	
	VALUE ADDED, NET

Operating surplus,gross/Mixed income,gross	

Consumption of fixed capital	
OPERATING SURPLUS, NET/MIXED INCOME, NET	

(3) According to the different valuation of output, the item "Taxes on production and imports", which never covers "taxes on imports" for the institutional sectors, includes
(a) other taxes linked to production
(b) taxes on products, except taxes on imports
other taxes linked to production
(c) taxes on products, except VAT and taxes on imports
other taxes linked to production
The item "subsidies" includes
(a) other subsidies linked to production
(b) and (c) subsidies on products, except subsidies on imports
other subsidies linked to production

II.1.2 Appropriation of primary income account

Property income	Operating surplus,gross/Mixed income,gross
	Consumption of fixed capital
Primary income, gross	OPERATING SURPLUS, NET/MIXED INCOME, NET
Consumption of fixed capital	
PRIMARY INCOME, NET	Property income
	Compensation of employees
	Taxes on production and imports
	Subsidies (-)

II.1.2.1 Entrepreneurial income account

Property income (connected with market activities)	Operating surplus,gross/Mixed income,gross
Interest	Consumption of fixed capital
Imputed property income to insurance policy holders	OPERATING SURPLUS, NET/MIXED INCOME, NET
Land rent and royalties	Property income (connected with market activities)
Entrepreneurial income, gross	
Consumption of fixed capital	
ENTREPRENEURIAL INCOME, NET	

II.1.2.2 Appropriation of other primary income account

Property income (connected with market activities)	Entrepreneurial income, gross
Distributed income of corporate enterprises	Consumption of fixed capital
Property income (not connected with market activities)	ENTREPRENEURIAL INCOME, NET
	Compensation of employees
Primary income, gross	Property income (not connected with market activities)
Consumption of fixed capital	
PRIMARY INCOME, NET	Taxes on production and imports
	Subsidies (-)

II.2. Secondary distribution of income account

Current taxes on income, wealth etc.	----------------
	Primary income, gross
Other current transfers	----------------
	Consumption of fixed capital
Social contributions	
	PRIMARY INCOME, NET
Social benefits in cash	
Miscellaneous current transfers	Current taxes on income, wealth etc.
----------------	Other current transfers
Disposable income, gross	
----------------	Social contributions
Consumption of fixed capital	
	Social benefits in cash
DISPOSABLE INCOME, NET	
	Miscellaneous current transfers

II.3. Redistribution of income in kind account

Social transfers in kind (govt., npi's)	----------------
	Disposable income, gross
----------------	----------------
Adjusted disposable income, gross	Consumption of fixed capital
----------------	
Consumption of fixed capital	DISPOSABLE INCOME, NET
ADJUSTED DISPOSABLE INCOME, NET	
	Social transfers in kind (households)

II.4 Use of income account

II.4.1 Use of disposable income account

Final consumption expenditure	----------------
	Disposable income, gross

	Consumption of fixed capital
	DISPOSABLE INCOME, NET

Saving, gross	

Consumption of fixed capital	
SAVING, NET	

II.4.2 Use of adjusted disposable income account

Actual final consumption	Adjusted disposable income, gross
	Consumption of fixed capital
	ADJUSTED DISPOSABLE INCOME, NET
Saving, gross	
Consumption of fixed capital	
SAVING, NET	

III. ACCUMULATION ACCOUNTS

changes in assets	changes in liabilities and net worth

III.1 Capital account

Gross fixed capital formation	SAVING, NET
Changes in stocks	Capital transfers receivable(+)
Consumption of fixed capital (-)	Capital transfers payable (-)
Net purchases of land and other non-prod. assets	
NET LENDING(+)/NET BORROWING(-)	
	CHANGES IN NET WORTH DUE TO SAVING & NET CAPITAL TRANSFERS

III.2 Financial account

Gold and SDR's	Gold and SDR's
Currency and deposits	Currency and deposits
Securities other than shares	Securities other than shares
Loans	Loans
Shares and other equity	Shares and other equity
Insurance technical reserves	Insurance technical reserves
Other accounts receivable	Other accounts payable
	NET LENDING(+)/NET BORROWING(-)

III.3 Other changes in assets accounts

III.3.1. Other changes in volume of assets account

Economic appearance of non-produced assets	CHANGES IN NET WORTH DUE TO OTHER CHANGES IN VOLUME OF ASSETS
Economic disappearance of non-produced assets (-)	
Destruction of assets by non-insurable risks (-)	
Uncompensated seizures(+/-)	
Adjustment of the residual value of assets (+/-)	
Changes in classification and structure	

III.3.2. Revaluation account

Nominal holding gains(+)/losses(-) (due to changes in actual prices)	Nominal holding gains(-)/losses(+) (due to changes in actual prices)
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	CHANGES IN NET WORTH DUE TO CHANGES IN ACTUAL PRICES
Financial assets	

III.3.2.1. Neutral revaluation

Neutral revaluation (in proportion to general price level)	Neutral revaluation (in proportion to general price level)
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	CHANGES IN NET WORTH DUE TO NEUTRAL REVALUATION
Financial assets	

III.3.2.2. Real holding gains/losses

Real holding gains(+)/losses(-) (due to changes in relative prices)	Real holding gains(-)/losses(+) (due to changes in relative prices)
Non-financial assets	Liabilities
Produced assets	
Non-produced assets	CHANGES IN REAL NET WORTH DUE TO CHANGES IN RELATIVE PRICES
Financial assets	

IV. BALANCE SHEETS

assets liabilities

IV.1. Opening balance sheet

Non-financial assets	
Produced assets	Liabilities
Non-produced assets	NET WORTH
Financial assets	

IV.2. Changes in balance sheet

Total changes in assets	
Non-financial assets	Total changes in liabilities
Produced assets	
Non-produced assets	CHANGES IN NET WORTH, TOTAL
Financial assets	SAVING & NET CAPITAL TRANSFERS
	OTHER CHANGES IN VOLUME OF ASSETS
	CHANGES IN ACTUAL PRICES
	neutral revaluation
	real holding gains/losses

IV.3. Closing balance sheet

Non-financial assets	
Produced assets	Liabilities
Non-produced assets	NET WORTH
Financial assets	

CHAPTER III: INSTITUTIONAL UNITS AND RESIDENCE*

A. INTRODUCTION

1. This chapter is concerned with the definition and description of the institutional units which make up the sectors and sub-sectors of the System. Economic agents, or decision takers, who are capable of engaging in economic activities and in transactions with other agents are described in the System as "institutional units". The various sectors and sub-sectors of an economy are composed of institutional units which are resident in the economy, the national economy as a whole consisting of the entire set of resident institutional units. The concept and definition of residence is explained in the later sections of this chapter.

2. An institutional unit may be defined as:

- an economic entity which is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities.

It follows that, in principle, it must be possible to compile a full set of accounts and to draw up a balance sheet for an institutional unit.

3. The characteristics of institutional units may be described more fully as follows:

- an institutional unit is entitled to own goods or assets in its own right; it is therefore able to exchange the ownership of goods or assets in transactions with other institutional units;
- an institutional unit is able to incur liabilities on its own behalf; it is able to take on other obligations or future commitments; it is entitled by law to enter into contracts, and may be involved in litigation on its own account;
- it is able to take decisions and actions for which it is itself held to be directly responsible and accountable at law;
- either a complete set of accounts, including a balance sheet of assets or liabilities, exists for the unit, or it would be feasible and meaningful, from both an economic and legal viewpoint, to compile a complete set of accounts if they were to be required.

4. There are two main types of units in the real world which are capable of possessing all the attributes of an institutional unit, namely persons - either as individuals or small groups in the form of households - and legal or social entities whose existence is recognized by law or society independently of the persons, or other entities, which may own or control them.

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

5. As explained further below, the individual members of multi-person households are not treated as separate institutional units in the System. Many assets are owned, or liabilities incurred, jointly by two or more members of the same household which would make it difficult to try to account for their wealth individually. Moreover, part or all of the income received by individual members of the same household may be pooled for the benefit of all members, while many expenditure decisions, especially those relating to the consumption of food, or housing, may be made collectively for the household as a whole. In these circumstances, it may be impossible to draw up meaningful accounts of income, consumption and saving for the members of the household on an individual basis. For these reasons, the System uses the household as the institutional unit.

6. The second type of institutional unit consists of a legal or social entity whose existence is recognized by law or society independently of the persons or other institutional units who may own or control them. These units consist principally of corporations, non-profit institutions and governments. Although such units must be able to take decisions and actions for which they are responsible and held to be accountable, their freedom to take such decisions or actions may be more or less constrained by other institutional units. In particular, corporations are subject to the control of their share-holders and the general policies or behaviour of individual corporations may be effectively controlled by one or more other institutional units in the form of corporations, persons or governments who hold a significant proportion of their voting shares.

7. Finally by way of introduction, it may be noted that, for analytical purposes, it may be appropriate to treat some of the activities carried out by certain large institutional units as if they were carried out by separate units: in other words, to split off certain transactions, assets or liabilities and attribute them to notional units which may not exist from a strict legal viewpoint. Such units are called quasi-corporations in the System.

B. HOUSEHOLDS AS INSTITUTIONAL UNITS

8. For purposes of the System, a household may be defined as:

- a small group of persons who share the same living accommodation, who pool some, or all, of their income and wealth and who consume certain types of goods and services collectively, mainly housing and food.

In general, each member of a household should have some claim upon the collective resources of the household. At least some decisions affecting consumption or other economic activities must be taken for the household as a whole.

9. Households often coincide with families, but members of the same household do not necessarily have to belong to the same family so long as there is some sharing of resources and consumption. Households may be of any size and take a wide variety of different forms in different societies or cultures depending on tradition, religion, education, climate, geography, history and other socio-economic factors. The definition of a household which is adopted by survey statisticians familiar with the socioeconomic conditions within a given country is likely to approximate closely to the concept of a household as defined in the System, although survey statisticians may add more precise, or operational, criteria within a particular country.

10. Servants or other paid domestic employees who live on the same premises as their employer do not form part of their employer's household even though they may be provided with accommodation and meals as remuneration in kind. Domestic employees have no claim upon the collective resources of their employers' households and the accommodation and food they consume are not included with their employer's consumption. Paid domestic employees should therefore be treated as belonging to separate households from their employers, unless they happen also to be related to their employer and are treated as part of the same family.

11. Persons living permanently in institutions, or who may be expected to reside in an institution for a very long, or indefinite, period of time are treated as belonging to a single institutional unit when they have no autonomy of action or decision in economic matters. The types of persons belonging to institutional households are the following:

- members of religious orders living in monasteries, convents or similar institutions;
- long-term patients in hospitals, especially mental hospitals;
- prisoners serving long sentences.

12. On the other hand, persons who enter hospitals, clinics, convalescent homes, religious retreats, or similar institutions for short periods, and also prisoners serving short sentences, should obviously be treated as members of the individual households to which they normally belong.

13. Although households are often regarded primarily as consumption units, in practice they may engage in any kind of economic activity. In this respect, their behaviour may be more complicated than that of legal entities whose actions may be restricted to the purposes for which they were created. For example, members of households may engage in production directly by setting up their own businesses or they may supply labour to other enterprises by working as employees. They may lend or borrow money, and so on. When members of households engage in activities other than consumption, they are still treated as integral parts of the households to which they belong and not as separate units. Thus, when a member of a household runs his or her own business, which is not established as a separate legal entity, that business cannot constitute a separate institutional unit from the household itself. The role of households as production units is examined in more detail in the next chapter when the functions of the institutional units which make up the Household Sector, and its sub-sectors, are described.

C. LEGAL OR SOCIAL ENTITIES RECOGNIZED AS INSTITUTIONAL UNITS

14. Legal or social entities are entities whose existence is recognized by law or custom independently of the persons, or other entities, who may own, control or manage them. In order to be treated as institutional units in the System they must be able to own goods or assets, incur liabilities and enter into contracts in their own right, so that they are able to engage in transactions with other institutional units on their own behalf. In practice, almost all such entities are legally constituted but there may also be informal associations, or social entities created for specific purposes, such as communal construction, which behave in a similar way to legal entities.

15. There are three main types of legal or social entities which are treated as institutional units in the System, namely: corporations, non-profit institutions and government units. The characteristics of the three types of units are explained in the following sections.

D. CORPORATIONS

16. Corporations are described as companies in some countries. "Corporation" is the preferred term used in the System. A corporation may be described as:

> a legal entity, created for the purpose of producing goods or services for profit, which is collectively owned by shareholders who have the authority to appoint directors responsible for its general management.

17. This summary description is not intended as a legal definition. The laws governing the creation, management and operations of corporations may vary from country to country so that it is not feasible to provide a precise definition of a corporation which would be universally valid. It is possible, however, to indicate in more detail what are the distinguishing features of corporation which are particularly relevant from the point of view of the System. They may be summarized as follows:

(1) A corporation is an entity created by process of law whose existence is recognized independently of the other institutional units - i.e., households, corporations or government units - which may own shares in its equity. The existence, name and address of a corporation are usually recorded in a special Register created for this purpose. A corporation is resident in the country in which it is created and registered.

(2) A corporation is created for the purpose of producing goods or services. Any surplus, or profit, accruing from its productive activities belongs to the shareholders: the amount of profits actually distributed or dividends in any single accounting periods depends, however, on the directors of the corporation. Undistributed profits are often described as retained earnings.

(3) Ownership of a corporation is vested in the shareholders collectively. Profits are distributed to shareholders in proportion to the value, or amounts, of the shares or other capital participation which they own. There may be different kinds of shares in the same corporation which carry different entitlement. In the event of a corporation being wound up, or liquidated, the shareholders are similarly entitled to a share in the equity of the corporation remaining after all assets have been sold and all liabilities paid. If a corporation is declared bankrupt because its liabilities exceed the value of its assets, the shareholders are not liable to repay the excess liabilities. The shareholders are different institutional units from the corporation itself and their liability is limited to the amounts of capital they have subscribed in shares.

(4) A corporation is fully responsible and accountable at law for its own actions, obligations and contracts, this being an essential attribute of an institutional unit in the System. A corporation is therefore liable to pay taxes in respect of its activities or any property which it may own.

(5) Control of a corporation is ultimately exercised by the shareholders collectively. A corporation has a board of directors who are responsible for the

corporation's policy and who appoint the senior management of the corporation. The board of directors is appointed by the collective vote of the shareholders.

(6) In practice, however, some shareholders may exert much more influence or control over the policies and operations of a corporation than others.

(a) The voting rights of shareholders may not be equal. Some types of shares may carry no voting rights, while others may carry exceptional rights, such as the right to make specific appointments to the board of directors or the right to veto other appointments made on a majority vote. Such exceptional rights may be held by the Government when it is a shareholder in a corporation.

(b) Very many shareholders with voting rights do not choose to exercise them. Voting usually requires attendance at general meetings of the shareholders or the nomination of another shareholder as a proxy with authority to vote on behalf of the original shareholder. In practice, the majority of shareholders may not exercise their voting rights, so that quite a small minority of active shareholders may be in a position to control the policy and operations of a corporation.

18. Two characteristics of a corporation are worth noting. The first is that a corporation cannot be a final consumer. Moreover, in contrast to a non-profit institution, it cannot even engage in final expenditures on behalf of households. When a corporation purchases goods or services which it provides to its employees, these are treated in the System either as compensation of employees paid in kind or as intermediate consumption by the corporation, depending upon the exact nature of the goods and services. The second characteristic is that the whole of the income, or profit, which a corporation generates ultimately benefits other institutional units, namely its shareholders. This again constitutes an important difference between a corporation and a non-profit institution which by definition, cannot generate a surplus which can be appropriated by other institutional units.

D.1 Ownership and control of corporations

19. The ownership of a corporation is diffused among the institutional units which own its shares in proportion to their shareholdings. It is possible for a single institutional unit, another corporation or a household or a government unit, to own all the shares in a corporation but, in general, ownership is diffused among several, possibly very many, institutional units.

20. A single institutional unit which owns more than a half of the share, or equity, of a corporation is able to control the policy and operations of the corporation, as it is able to appoint directors of its own choice, by outvoting all other shareholders. Similarly, a small group of shareholders whose combined ownership of shares exceeds 50 per cent of the total is able to control the corporation by acting in collusion. There may be exceptional cases in which certain shareholders enjoy privileged voting rights, such as a right of veto, but in general an individual institutional unit or group of units, holding more than half the voting shares of a corporation can be said to have complete control over the corporation. An institutional unit, or group of units, in this situation is in a position to ensure that all major decisions concerning general corporate policy conform to its wishes while leaving the conduct of its day-to-day operations in the hands of its appointed directors or other managers. It follows that the degree of autonomy exercised by the directors and managers of a corporation is likely to vary

considerably depending upon the extent to which the ownership of the corporation shares is concentrated in the hands of a small number of other institutional units, whether other corporations, households or government units. For this reason, corporations in general cannot be said to enjoy autonomy of decision. In general, the System does not require an institutional unit to have complete autonomy of decision, although it does require institutional units to be responsible, and accountable, for the decisions and actions they take.

21. Because many shareholders do not take an active interest in the corporations in which they hold shares and do not exercise their voting rights in general meetings of shareholders, a single shareholder, or small number of shareholders acting in collusion, may be able to outvote other shareholders and secure control over a corporation even though they hold less than half of the total shares. Indeed, experience suggests that control over many corporations may be secured by owning considerably less than a half of the shares. When ownership of shares is widely diffused among a very large number of shareholders, most of whom own only a tiny fraction of the total, it may be possible to secure control by owning as few as 20 per cent or less of the total shares.

22. Even though control over most corporations may be secured by owning less than half of the total shares, it is obviously not possible to stipulate a minimum shareholding below 50 per cent which will guarantee control in all corporations. The minimum shareholding must vary from corporation to corporation depending upon the total number of shareholders, the distribution of shares among them, the extent to which shareholders take an active interest, and so on.

23. As explained in the next chapter, the sub-sectors of the System separate private corporations from public corporations which are controlled by government units, and also separate private corporations which are controlled by non-resident units from other private corporations. In both cases, control is defined as the ability to appoint the directors of a corporation and thus determine general corporate policy. Owning more than half the shares of a corporation is evidently a sufficient, but not a necessary, condition for control in this sense. Nevertheless, because it would be extremely difficult in practice to identify those corporations over which control is exercised by a minority of shareholders, it is recommended that, for purposes of the System, corporations subject to public or foreign control should normally be confined to those in which governments or non-residents own a majority of the shares. This recommendation is intended as a practical guideline to which exceptions can be admitted, however, if there is other unambiguous evidence of control. For example, a corporation over which a government is able to exercise control as a result of special legislation should be treated as a public corporation even if the government does not own a majority of the shares.

D.2 Subsidiary, associate and holding corporations

24. It is common for corporations to own shares in other corporations and certain inter-relationships between corporations need to be specified for purposes of the System.

D.2.1 Subsidiary corporations

25. Corporation B is said to be a subsidiary of corporation A when either: corporation A controls more than half of the shareholders' voting power in

corporation A or: corporation A is a shareholder in B with the right to appoint or remove a majority of the directors of B.

26. Corporation A may be described as the parent corporation in this situation. As the relationship of a parent corporation to a subsidiary corporation is defined in terms of control rather than ownership, the relationship must be transitive: that is, if corporation C is a subsidiary of corporation B it must also be a subsidiary of A. If A has a majority shareholding in B while B has a majority shareholding in C, it is impossible for A to have a majority shareholding in C. Nevertheless, if A is able to control B it must also be able to control C, so that C can also be described as a subsidiary of A according to the definition given above. By analogy with families of persons, corporation B can be described as a first generation subsidiary of corporation A and corporation C as a second generation subsidiary of A. Evidently, large families of corporations may be built up with any number of subsidiaries at each level or "generation" and also any number of "generations of subsidiaries". Very large families of corporations, described as conglomerates, are encountered in some countries. Conglomerates may include corporations resident in different countries, in which case the parent corporation is usually described as a multinational corporation.

D.2.2 Associate corporations

27. Corporation B is said to be an associate of corporation A when corporation A and its subsidiaries control between 10 and 50 per cent of the shareholders' voting power in B which enables A to have some influence over the corporate policy and management of B.

28. By definition, the amount of control which a corporation is sure of being able to exert over an associate corporation is less than that which it is able to exert over a subsidiary. In practice, some corporations may be able to exert considerable influence over their associates but this cannot be guaranteed. The relationship between associates is weaker than that between parent and subsidiary corporations, and groups of associates may not be well defined.

D.2.3 Groups of corporations and holding corporations

29. As just described, large groups of corporations, or conglomerates, may be created whereby a parent corporation controls several subsidiaries, some of which may control subsidiaries of their own, and so on. Two different types of parent corporation may be distinguished. The first consists of a corporation whose principal activity is the production of particular kinds of goods and services which acquires control over other corporations in order to strengthen its own position as a producer. It may, for example, acquire control of a corporation which supplies it with components which it uses in its own production, or it may acquire control of a competitor. In such cases, the parent corporation continues in its own type of production, notwithstanding its control over one or more subsidiaries.

30. On the other hand, there are also corporations whose principal function is to control and direct a group of subsidiaries, without having any significant independent production of their own. Such corporations are generally described as "holding corporations" or "holding companies".

31. For certain purposes, it may be desirable to have information relating to a group of corporations as a whole. However, with the exception of ancillary corporations described in the next section, the System requires each individual corporation to be treated as a separate institutional unit, whether or not it forms part of a group. Even subsidiaries which are wholly owned by other corporations are separate legal entities which are required by law and the tax authorities to produce complete sets of accounts, including balance sheets. Although the management of a subsidiary corporation may be subject to the control of another corporation, it still retains responsibility for the conduct of its own production processes and may be held legally accountable for its various activities. In any case, the System does not require institutional units to enjoy complete autonomy of decision. All directors or managers of corporations are subject to removal by their shareholders, and not merely those whose shareholders happen to be other corporations.

32. An additional reason for not treating groups of corporations as single institutional units is that groups are not always well defined or easily identified in practice. It may be difficult to obtain data for groups whose activities are not closely integrated. Moreover, many conglomerates are much too large and heterogeneous for it to be appropriate to treat them as single units and their size and composition may be continually shifting over time as a result of mergers and takeovers.

D.3 Ancillary corporations

33. An ancillary corporation may be defined as: a subsidiary corporation which is wholly owned by a parent corporation, or by a parent corporation and its subsidiaries, whose productive activities are entirely ancillary to those of the parent corporation and its subsidiaries.

34. The concept of an ancillary activity is explained in Chapter . It may be briefly described as an activity which is intended to provide services entirely for its own consumption within enterprise or for the benefit of another corporation, or small group of corporations, to which the enterprise belongs. An ancillary activity is essentially internal to an enterprise or to a small group of corporations under common ownership and control. The kinds of services which are typically produced by ancillary activities are transportation, purchasing, sales and marketing, various kinds of financial or business services, computing and communications, security, maintenance, cleaning and so on. These are activities which are needed, to some extent or other, in all enterprises, whatever the nature of their principal activity.

35. Depending upon the nature of the tax and corporation law in force in a particular country, a corporation may find it advantageous to create a subsidiary corporation purely in order to perform certain ancillary activities for its own benefit. For example, it may create a subsidiary to which ownership of its land, buildings or equipment is transferred and whose sole function is to lease them back again to the parent corporation; or it may create a subsidiary to keep its accounts and records on a separate computer installation; and so on. In some cases, corporations may create "dormant" subsidiaries which are not actually engaged on any production but which may be activated at the convenience of the parent corporation.

36. The reference to a "small group of corporations" in the description of an ancillary corporation is needed to cover the situation in which a corporation finds it convenient to create more than one ancillary corporation. In such a case, an ancillary corporation may provide the same services, e.g., leasing equipment, not merely to the parent itself but also to other ancillary corporations under its ownership and control.

37. Ancillary corporations are not to be treated as separate institutional units in the System. When a parent corporation has created a single ancillary corporation, the ancillary corporation should be treated as an integral part of the parent and its accounts consolidated with those of the parent. When a parent corporation has created several ancillary corporations, they should all be treated as forming a single institutional unit and their accounts consolidated.

38. Ancillary corporations are not treated as separate institutional units because they can be regarded as artificial production units which are usually created not for technological reasons but in order to try to avoid taxes, to minimize liabilities in the event of bankruptcy, or to secure other advantages under the tax or corporation legislation in force in a particular country.

D.4 Co-operatives, limited liability partnerships, etc.

39. In addition to ordinary corporations, or companies, there are also other legal entities created for the purpose of engaging in production for profit but which may be described differently because they have rather specialized functions. Such entities are classed as corporations in the System.

40. They include, for example, co-operatives set up by producers for purposes of marketing their collective output. The profits of such co-operatives will be distributed in accordance with their agreed rules and not necessarily to their owners in proportion to shares held, but effectively they operate like corporations. Similarly, partnerships whose members enjoy limited liability are separate legal entities which behave like corporations. In effect, the partners are at the same time both shareholders and managers.

41. In general, all entities, however they may describe themselves or whatever they may be called, which are set up for purposes of engaging in production for profit, and which are recognized at law as separate legal entities from their owners, are treated as corporations in the System.

D.5 Quasi-corporations

42. A quasi-corporation may be defined as: an unincorporated enterprise which is owned by a non-resident institutional unit or which is owned by a resident unit but which managed as if it were a separate corporation and whose *de facto* relationship to the resident unit to which it belongs is that of a corporation to its shareholders.

43. For purposes of sectoring and sub-sectoring the System treats quasi-corporations as if they were corporations: that is, as if they were separate institutional units from the units to which they legally belong.

44. There are three main kinds of quasi-corporations recognized in the System:

- unincorporated enterprises which belong to institutional units resident abroad: those consist mainly of the branches, or permanent offices, of foreign corporate or unincorporated enterprises or of production units which belong to foreign enterprises but which engage in substantial production within the national economy over long, or indefinite, periods of time, e.g., units engaged in the construction of bridges, dams or other large structures;

- unincorporated enterprises belonging to government units which are engaged in market production and which are managed in a similar way to publicly owned corporations;

- unincorporated enterprises, including unincorporated partnerships, which belong to households but which are managed as if they were privately owned corporations.

45. In practice, few countries are able to distinguish quasi-corporations belonging to the third category, but quasi-corporations belonging to the first and second categories are more easily identified and may be important in many countries. The intention behind the concept of a quasi-corporation is fairly clear: namely, to separate from their owners those unincorporated enterprises which are sufficiently articulated and independent of their owners to behave or operate as if they were corporations. They may behave in this way for several reasons: for example, because they are located in a different country from their parent enterprises; because they have grown large; or for other reasons.

46. Quasi-corporations must keep complete sets of accounts. Not all institutional units are required to keep complete sets of accounts because most households do not keep any kind of accounts. However, the existence of a complete set of accounts, including balance sheets, is a necessary condition for an unincorporated enterprise to be treated as a quasi-corporation. Otherwise, it is not feasible to distinguish the imputed transactions which take place between the quasi-corporation and its owner and which are needed for the accounts of the System.

47. As a quasi-corporation is treated in the System as a separate institutional unit from its owner, it must have its own value added, saving, net worth, etc. It follows that it must be possible to identify any transfers of income and capital which are deemed to take place between the quasi-corporation and its owner. This is important, for example, in the case of those foreign direct investment enterprises (see <>) which are unincorporated branches of foreign enterprises. The amount of income withdrawn from a quasi-corporation during a given accounting period is decided by the owner, such a withdrawal being equivalent to the payment of a dividend by a corporation to its shareholder(s). Once the amount of income withdrawn has been decided, the saving of the quasi-corporation (i.e., the amount of profits or earnings retained within the quasi-corporations) can be distinguished from that of its owner. A balance sheet is also needed for the quasi-corporation showing the values of its physical assets - buildings, machinery and equipment, inventories - used in production and also the financial assets and liabilities attributable to the productive activities of the quasi-corporation - bank deposits, overdrafts, trade credit and debits, other receivables or payables, and so on. The owner may decide to invest more capital in the enterprise, or withdraw capital from it by disposing of some of its assets, and such transfers of capital between a quasi-corporation must also be identifiable in the accounts whenever they occur.

48. As already mentioned, experience has shown that most countries are not able to compile data for quasi-corporations owned by households. It is not useful to introduce additional criteria, such as size, into the definition of quasi-corporations owned by households as such criteria do not help if the enterprise in question is not managed independently. For example, large unincorporated enterprises owned by households are more likely to have the requisite sets of accounts which are needed to enable them to be treated as quasi-corporations but, if not, they cannot be treated as quasi-corporations, however large they may be. There may well be large unincorporated enterprises with many employees which are directly controlled and managed by their owners and for which no separate accounts can be compiled. Such enterprises cannot be treated as quasi-corporations. It is, therefore, futile to recommend that all unincorporated enterprises above a certain size - for example, with more than 50 employees - must be treated as quasi-corporations, when such enterprises may not qualify as quasi-corporations in practice.

E. NON-PROFIT INSTITUTIONS (NPIs)

49. Non-profit institutions, or NPIs, are legal or social entities created for the purpose of producing goods and services but which differ from corporations in one fundamental respect, namely that they are not established for the purpose of generating an income, or providing a financial return, for the benefit of the units which own and control them. Inevitably, they must generate either surpluses or deficits on their productive activities, but any surpluses they happen to make cannot by appropriated by other institutional units. Their legal status, as specified in their articles of association, are drawn up in such a way that the institutional units which own or control them are not entitled to a share in the profits or other income which they receive. NPIs are self-contained entities which are prohibited from distributing their income or assets to others and, for this reason, they are frequently exempted from various kinds of taxes.

50. The motives which lead other institutional units, whether persons, corporations, or government, to create NPIs are varied. For example, NPIs may be created to provide services collectively to the persons or corporations who control them; or they may be created for charitable, philanthropic or welfare reasons to provide goods or services to other persons in need; or they may be intended to promote the interests of pressure groups in business or politics; and so on.

E.1 The characteristics of NPIs

51. The main features of NPIs may be summarized as follows:

- An NPI is a legal entity which is created by process of law and whose existence is recognized independently of the persons, corporations or government units which control it. The purpose of the NPI is stated in the Articles of Association or similar legal document drawn up at the time of its establishment. Additionally, in some countries, especially developing countries, an NPI may be a social entity whose existence is clearly recognized by the community but which does not have any formal legal status; such an NPI is usually created for the purpose of providing non-market goods or services to individual members of the community or the community as a whole.

- An NPI is normally controlled by a group of members. The number of members may be small or large. The rights of each member are specified in the Articles of Association or other document or agreement. Members usually have equal rights, including an equal vote on all major decisions affecting the affairs of the NPI. Members enjoy limited liability with respect to the NPIs operations.

- There are no shareholders with a claim on the profits or equity of the NPI. The members are not entitled to a share in any profits, or surplus, generated by the productive activities of the NPI, such profits being retained within the NPI.

- The direction of an NPI is usually vested in a group of officers, executive committee or similar body elected by a simple majority vote of all the members. These officers are the counterpart of the Board of Directors of a corporation and are responsible for appointing any paid managers.

- The term "non-profit institution" derives from the fact that the members of the association controlling the NPI do not stand to gain financially from its operations and cannot appropriate any surplus which it may make. It does not imply that an NPI cannot make a surplus or profit, especially on a particular type of activity in a particular accounting period.

E.2 NPIs as market and non-market producers

52. As in the case of producer units owned by government units, it is important to distinguish between NPIs engaged in market and non-market production as this affects the sector of the economy to which an NPI is allocated. It should not be assumed that NPIs are necessarily engaged in non-market production.

E.2.1 NPIs engaged on market production

53. There are many examples of NPIs which sell their outputs at prices designed to recover most or all of their costs, particularly in the fields of education and health. The market producers consist of those schools, colleges, universities, clinics, hospitals, etc. which charge fees which are geared to their average production costs. Some of these producers provide education or health services of a very high quality for which they charge correspondingly high fees. Their production activities must generate an operating surplus or a loss. If they make a surplus they must retain it within the institution as their status prevents them from distributing it to others. On the other hand, because of their special status as "non-profit institutions" they are also able to raise additional funds by appealing for donations from persons, corporations or government. In this way, they may be able to build up large holdings of assets which generate substantial income from property which in turn makes it possible for them to charge fees somewhat below average costs. However, they must continue to be treated as market producers so long as their prices do not fall sufficiently low as to bear little or no relation to costs. As the kinds of institutions under consideration here are not charities providing services to the poor, their fees do not tend to fall in this way. The real objective of these institutions is to provide educational,

health or other services of a high quality and standard, and they use their incomes from endowments merely to reduce somewhat the very high fees they would otherwise have to charge.

E.2.1.1 NPIs serving businesses

54. Most NPIs serving businesses are created by associations of the businesses whose interests they are designed to promote. The NPIs consist of chambers of commerce, agricultural, manufacturing or trade associations, employers' organizations, research or testing labouratories or other organizations or institutes which engage in activities which are of mutual interest or benefit to the group of businesses in question. The NPIs often engage in publicity on behalf of the group, lobby politicians or provide advice or assistance to individual members in difficulty for one reason or another. The NPIs are usually financed by contributions or subscriptions from the group of businesses concerned. The System treats the subscriptions as if they were payments for services rendered and these NPIs are therefore classed as market producers.

E.2.2 NPIs engaged in non-market production

55. However, the majority of NPIs in most countries are engaged in non-market rather than market production. Thus, they may be distinguished not only by the fact that they are incapable of providing financial return to the units which own or control them, but also by the fact that they must rely principally on funds other than receipts from sales to cover their costs of production or other activities. Their principal source of finance may be regular subscriptions paid by the members of the association which controls them or transfers or donations from third parties, including government.

E.2.2.1 Non-market NPIs serving households

56. These consist of NPIs which provide individual or collective services to households without charge or at nominal prices which are not determined by their average costs of production. Two main types of NPIs serving households may be distinguished.

E.2.2.1.1 Non-market NPIs serving their own members

57. The first type consists of NPIs which are created by associations of persons to provide goods or, more often, services primarily for the benefit of the members themselves. The services are usually provided free, being financed by regular membership subscriptions or dues. They include NPIs such as professional or learned societies, political parties, trade unions, consumers' associations, churches or religious societies, and social, recreational or sports clubs. It may be inefficient, or impossible, for persons to secure the kinds of services provided by such associations by acting individually. Indeed, many NPIs are created specifically in order to provide collective protection for the interests, security or welfare of their members or to provide them with communal recreational facilities. In this way, they provide collective services to selected groups of persons which are similar to the collective services that government provides to the community as a whole.

58. In some communities, especially in developing countries, NPIs may be formed which do not possess any legal status or formal articles of association. Such

NPIs are formed by groups of persons to engage in communal activities such as the construction of buildings, roads, bridges, ditches, dikes, or other structures for the benefit of the local community or other activities such as the protection of the community. The resources of such NPIs do not come from cash contributions but rather from contributions in kind, such as provision of materials and labour by the members of the group.

E.2.2.1.2 Non-market NPIs engaged in charitable purposes

59. A different type of NPI serving households is one which mainly provides non-market goods or services to households which are not members of the NPI. Such NPIs exist to provide goods and services to third parties who are in need and their purposes are therefore essentially philanthropic or charitable. Their resources may come from regular contributions or subscriptions from the members of the association which controls the NPI, or from donations from the general public or from government.

E.2.2.2 Non-market NPIs controlled and financed by government

60. There may also be NPIs which are controlled and financed by government, but they must, of course, be properly constituted legal entities which exist independently of government. Such NPIs may be engaged in research or development, for example, for the benefit of certain groups of producers, such as farmers. They may also be concerned with the setting or maintenance of standards in fields such as health, safety, the environment, accounting, finance, education, and so on, which may benefit both enterprises and households. Governments find it appropriate to create NPIs for this purpose, rather than using agencies of government to carry out the same functions, because NPIs concerned with public standards may need to be seen as detached and objective, and not subject to political pressures. When an NPI is both controlled and financed by government, however, it is allocated to the government sector in the System, irrespectively of the type of institutional units which benefit from its activities.

F. GOVERNMENT UNITS

F.1 Governments as institutional units

61. In general terms, government may be described as a unique kind of legal entity established by political processes which has legislative, judicial and executive authority over other institutional units within a given territory. For purposes of economic accounting, the following activities of government need to be singled out:

(1) A government has the authority to raise funds by collecting compulsory levies from other institutional units. In order to satisfy the basic requirements of an institutional unit in the System, a government unit - whether at the level of the nation, a region or a locality - must have the authority to raise a substantial proportion of its revenues from sources which it controls, and to disburse some, or all, of such funds in the pursuit of its political objectives, and to borrow funds on its own account.

(2) Three different kinds of government expenditures can be distinguished from each other in the accounts of the System:

(a) The first group of expenditures consists of those which a government unit makes on the provision of collective services to the community such as public administration, defense, law enforcement, public health, etc. which are almost invariably financed by government out of general taxation (or occasionally provided by non-profit institutions) because the transactions costs which would be incurred if an attempt were to be made to charge individuals according to their individual usage or benefit would be prohibitively high.

(b) The second group of expenditures consists of those which a government unit incurs on the provision of goods or services free, or at greatly reduced prices, to individual institutional units, mostly households. These expenditures are incurred as a matter of deliberate choice by government in the pursuit of its social or political objectives, although individuals could be made to pay according to their usage of such services if the government wished.

(c) The third category of disbursements consists of unrequited transfers which the government pays to other institutional units, mostly households, in order to redistribute income or wealth. These transfers are also made as a matter of deliberate choice by government in the pursuit of its social or political objectives.

62. As a result of the sheer size of their operations and transactions, governments are also in a position to influence the economic behaviour of other institutional units by varying the ways in which they obtain their revenues or make disbursements. They can also, of course, influence the behaviour of other units directly by legislation or regulation.

F.2 Governments as producers

63. As noted above, in the pursuit of their social or political objectives most governments choose to provide at least some goods or services free, or at greatly reduced prices, to the community as a whole, or to certain sections of the community. However, it does not follow that such goods or services must also be produced by units which are directly owned and controlled by government. Governments may feel obliged to produce certain services themselves, in particular defence and some other collective services, but they are under no such obligation for services provided to individual households, such as education or health, which may be produced privately even though paid for by government. Even some public services such as street cleaning, repairs and maintenance can be produced privately while being financed by government out of taxation. Thus, the decision to provide goods or services free, or at nominal prices, does not generally imply that governments have to engage in the production of those goods or services themselves, the two decisions being, in principle, quite separate from each other.

64. Conversely, governments may decide to engage in certain kinds of production, not to achieve certain social or political objectives, but simply to raise revenues by making profits. It is common for government-owned monopolies to be established for the production and sale of goods such as tobacco products, alcoholic drinks, playing cards and so on. If such monopolies are public corporations, however, they constitute separate institutional units from government.

F.3 Central, state and local governments

65. There may be several levels of government within a country, and the System distinguishes three main levels - central, state and local. However, units at different levels of government are not generically different from each other. Distinguishing between the three levels is therefore essentially a matter of grouping different kinds of government units into sub-sectors and is postponed to the next chapter.

F.4 Social security funds

66. Social security funds constitute special kinds of institutional units which may be found in conjunction with government units at any level of government - central, state or local. Before defining social security funds, it is necessary to describe the nature of social security schemes in general. Social security schemes are intended to provide social benefits to all members of the community, or to large groups of individuals, out of funds derived mainly from compulsory social contributions. Social security schemes are imposed and controlled by government units. They generally involve compulsory contributions by employees or employers or both, and the terms on which benefits are paid to recipients are determined by government units. The schemes cover a wide variety of programmes, providing benefits in cash or in kind for old age, invalidity or death, survivors, sickness and maternity, work injury, unemployment, family allowance, health care, etc. There is usually no direct link between the amount of the contribution paid by an individual and the risk to which that individual is exposed. Social security schemes have to be distinguished from pension schemes which are determined by mutual agreement between individual employers and their employees, the benefits being linked to contributions.

67. Social security funds may be distinguished from other social security schemes in that they are separately organized from the other activities of government units and hold their assets and liabilities separately from the latter. They must be treated as separate institutional units in the System because they are autonomous funds which have their own assets and liabilities and engage in financial transactions on their own account. However, institutional arrangements in respect of social security differ from country to country and in some countries they may become so closely integrated with the other finances of government as to bring into question whether they should be treated as separate institutional units. The amounts raised, and paid out, in social security contributions and benefits may be deliberately varied in order to achieve objectives of government policy which have no direct connection with the concept of social security as a scheme to provide protection to members of the community. They may be raised or lowered in order to influence the level of aggregate demand in the economy, for example. Nevertheless, so long as they remain separately constituted funds they must be treated as separate institutional units in the System.

F.5 International organizations

68. International organizations have all the essential attributes of institutional units as described in paragraph 2 of this chapter. The special characteristics of an "international organization" as this term is used in the System may be summarized as follows:

(1) the members of an international organization are either national states or other international organizations whose members are national states; they thus derive their authority either directly from the national states which are their members or indirectly from them through other international organizations;

(2) they are entities which are established by a formal political agreement between their members which has the status of an international treaty; their existence is recognized by law in their member countries;

(3) because they are established by international agreement they are accorded sovereign status; that is, international organizations are not subject to the laws or regulations of the country, or countries, in which they are located; it follows that they are not treated as resident institutional units of the countries in which they are located;

(4) international organizations are created for the purpose of engaging in one, or both, of the following types of activities:

(a) the provision of non-market services of a collective nature for the benefit of their members,

(b) financial intermediation at an international level - that is, channelling funds between lenders and borrowers in different countries; an international organization may also act as a central bank to a group of countries.

69. Formal agreements concluded by all the member countries of an international organization may sometimes carry the force of law within those countries. Most international organizations are financed by contributions from their member countries, but some organizations may raise funds directly by borrowing on financial markets.

G. THE RESIDENCE OF INSTITUTIONAL UNITS

G.1 Introduction

70. Residence is an attribute of an institutional unit. It is also applied to the individual persons who make up a household but it does not apply to the objects, land or tangible assets which are owned by institutional units. However, when a single corporation, non-profit institution or household is engaged in economic activities in more than one country, it may be necessary to partition it into two or more separate institutional units for purposes of the System by creating quasi-corporations or notional institutional units in respect of certain activities or transactions carried out abroad. Government units, on the other hand, are never partitioned in this way.

71. The concept of residence is important for several reasons and not simply to be able to identify transactions between residents and non-residents. Only resident producers contribute to Gross Domestic Product so that the limits to domestic production are determined by the residency status of the producers and not by the geographical boundaries of a country. Some of the GDP of a country may be generated by residents engaged in production abroad. Conversely, the GDP of a country does not include the value added of non-resident producers engaged in production inside the territory of that country. Service producers, in particular, are becoming increasingly mobile as a result of improved transport and

communications technology and often engage in considerable amounts of production abroad as well as at home. The residence of certain kinds of service producers is becoming increasingly difficult to determine at the same time that their activities are growing in importance. Residence has therefore major consequences not only for the measurement of GDP itself but also for many important flows in the System and in Balance of Payments statistics. The concept of residence used in the System is the same as that used in the Balance of Payments Manual of the International Monetary Fund.

72. The concept of residence used in the System is not based on nationality or legal criteria (although it may be similar to the concept of residence which is used for tax purposes in many countries). Moreover, the boundaries of a country which may be recognized for political purposes may not always be appropriate for economic purposes and it is necessary to introduce the concept of the "economic territory" of a country as the relevant geographical area to which the concept of residence is applied in the System. An institutional unit is then said to be a resident unit for purposes of the System when it has a centre of economic interest in the economic territory of the country in question. In order to make the concept of residence operational, it is necessary to explain what is meant by "economic territory" and "centre of economic interest".

G.2 The economic territory of a country

73. The economic territory of a country consists of the geographic territory administered by a government within which persons, goods and capital circulate freely. In the case of maritime countries, it includes any islands belonging to that country which are subject to exactly the same fiscal and monetary authorities as the mainland so that goods and persons may move freely to and from such islands without any kind of customs or immigration formalities. The economic territory of a country includes:

(1) The airspace, territorial waters and continental shelf lying in international waters over which the country enjoys exclusive rights or over which it has, or claims to have, jurisdiction in respect of the right to fish or to exploit fuels or minerals below the sea bed.

(2) Territorial enclaves in the rest of the world; that is, clearly demarcated areas of land which are located in other countries and which are used by the government which owns or rents them for diplomatic, military, scientific or other purposes with the formal political agreement of the government of the country in which they are physically located; these consist of embassies, consulates, military bases, scientific stations, information or immigration offices, aid agencies, and so on. Goods or persons may move freely between a country and its territorial enclaves abroad, but become subject to control by the government of the country in which they are located if they move out of the enclave.

(3) Any free zones, or bonded warehouses or factories operated by offshore enterprises under customs control; these form part of the economic territory of the country in which they are physically located.

74. The economic territory of an international organization, as defined in section F.5 above, consists of the territorial enclave, or enclaves, over which it has jurisdiction; these consist of clearly demarcated areas of land which the international organization owns or rents and which it uses for the purposes for

which the organization was created by formal agreement with the country, or countries, in which the enclave, or enclaves, are physically located.

75. It follows that the economic territory of a country does not include the territorial enclaves used by foreign governments or international organizations which are physically located with the geographical boundaries of that country.

G.3 Centre of economic interest

76. An institutional unit is said to have a centre of economic interest within a country when there exists some location - dwelling, place of production, or other premises - within the economic territory of the country on, or from, which it engages, and intends to continue to engage, in economic activities and transactions on a significant scale, either indefinitely or over a finite but long period of time. The location need not be fixed so long as it remains within the economic territory. Thus, an enterprise has a centre of economic interest when it is engaged in a substantial amount of production in a country and maintains at least one production establishment in a country which it plans to operate either indefinitely or over a long period of time. A household has a centre of interest when it maintains a dwelling, or succession of dwellings, within the country which members of the household treat, and use, as their principal residence. It follows that most of the consumption, including the consumption of housing services, undertaken by members of a resident household take place within the country. The residence of the individual persons who make up a household is the same as that of the household to which they belong, irrespective of where they work. Most employees work in the same economic territory in which the household to which they belong is resident but it is possible for a member of a resident household to work in a different economic territory - for example, staff working for international organizations, the local staff employed by embassies or military bases, or border workers who cross the frontier of a country each day to go to work.

77. A government unit obviously has its centre of economic interest in the economic territory in which it exercises jurisdiction and in which it has the authority to raise taxes. As explained in the following chapter, central government has to be treated as a single, indivisible institutional unit including its embassies, military bases, or other units located in enclaves abroad which form part of its own economic territory.

78. In most cases, it is reasonable to assume that an institutional unit has a centre of economic interest in a country if it has already engaged in economic activities and transactions on a significant scale in the country for one year or more, or it intends to do so. The conduct of economic activities and transactions over a period of one year must normally signal a centre of interest as understood in the System, but the choice of any specific period of time has to be somewhat arbitrary and it must be emphasized that one year is suggested only as a guideline and not as an inflexible rule.

79. The ownership of land and buildings within the economic territory of a country is deemed to be sufficient in itself for the owner to have a centre of economic interest in that country. Land and buildings can obviously only be used for purposes of production in the country in which they are located and their owners, in their capacity as owners, are subject to the laws and regulations of that country. It may happen, however, that an owner is resident in another country and does not have any economic interest in the country in which he owns the land or

buildings other than the land or buildings themselves. In that case, the owner is treated in the System as if he delegated his ownership to a notional institutional unit which is actually resident in the country. The notional unit is itself treated as being entirely owned and controlled by the non-resident actual owner, in much the same way as a quasi-corporation is owned and controlled by its owner. In this way, the rents paid by the tenants of the land or buildings are deemed to be paid to the notional resident unit which in turn makes a transfer of property income (not rent) to the actual non-resident owner.

G.4 The residence of households and their members

80. All persons who belong to the same household must be resident in the same country in practice. If a member of an existing household were to be considered no longer resident in the country in which that household is resident, *ipso facto* he or she would cease to be a member of that household.

81. A member of a resident household who leaves the economic territory to return to that same household after a short period of time continues to be a member of that household even if he, or she, makes frequent journeys outside the economic territory. There are many categories of people who make such short visits abroad, especially as the relative costs of long distance travel, in time as well as money, have greatly fallen. The following categories of persons who spend time abroad must, therefore, continue to be treated as *residents*:

(1) travellers and tourists: that is, persons who leave the economic territory for limited periods of time for recreation, business, health, education, or other purposes;

(2) people who work some, or all, of the time in a different economic territory from that in which the household to which they belong is resident;

(a) seasonal workers who work for part of the year in another country in response to the varying seasonal demand for labour and then return to their households;

(b) border workers who regularly cross the frontier each day, or each week, to work in a neighbouring country;

(c) the staff of an international organization who work in the enclave of that organization;

(d) the locally recruited staff of foreign embassies, consulates, military bases, etc.

(e) the crews of ships, aircraft, or other mobile equipment operating partly, or wholly, outside the economic territory.

82. The circumstances in which a person is likely to cease to be a member of a resident household are when that person works continuously for one year or more in a distant foreign country. If that person is able to rejoin his or her original household only very infrequently for short visits and decides to set up a new household, or join a household, in the country of work, the person can no longer be treated as resident in the original country. Most of the individual's consumption

must take place in the country of work, and the person clearly has a centre of economic interest there.

83. Even if a person continues to be employed and paid by an enterprise which is resident in his home country, he or she should normally be treated as resident in the country of work if he or she works continuously in the foreign country for one year or more. As explained below, in these circumstances the person has to be treated as being employed either by a quasi-corporation which is owned by the enterprise and which is resident in the country in which the work takes place, or alternatively as being employed by a foreign agent. The latter case is intended to cover technical assistance personnel working in a foreign country on contracts or assignments of one year's duration or more. Technical assistance personnel on long-term assignments should be treated as residents of the country in which they work who are employed by their host government acting as an agent on behalf of the government, or international organization, which is actually financing their work. A transfer of funds should then be imputed from the government or international organization which actually employs them to the host government to cover the cost of their salaries and allowances.

84. The situation of military personnel and civil servants, including diplomats, whom a government employs in its own enclaves abroad, is different. Those enclaves - military bases, embassies and the like - form part of the economic territory of the employing government and the personnel often live as well as work in the enclaves. The employees whom a government transfers to work in such enclaves therefore continue to be as residents of their home country however long they work in the enclaves, even if they live in dwellings outside those enclaves.

85. Finally, students should be treated as residents of the country from which they originate however long they study abroad, provided they maintain an economic attachment with that country. They remain attached to their original country if they are dependent on a household, a non-profit institution or the government of their country of origin for the funds which finance their studies, and if they plan to return to that country on completing their studies. In these circumstances, their centre of economic interest is their country of origin rather than the country in which they study. Even if their course of study extends over several years, students usually return home to spend long vacations with their families.

G.4.1 The residence of unincorporated enterprises owned by households

86. As an unincorporated enterprise is part of the same institutional unit as the household to which its owner belongs, the residence of an unincorporated enterprise is normally determined by the residence of that household. However, when the establishment in which the production takes place is located in a different country from that in which its owner is resident, the establishment must be treated as quasi-corporation which is resident in the country in which it is located.

G.5 The residence of corporations

87. A corporation is resident in the country under whose laws and regulations it was created and in which its existence as a legal entity is officially recognized and recorded. The residence of the shareholders who own the equity of a corporation is irrelevant to the residence of the corporation. A resident corporation may be wholly owned and controlled by non-resident institutional units - non-resident households, corporations or governments.

88. For example, so-called offshore enterprises which may be wholly owned by non-resident institutional units are resident in the countries in which they are registered and conduct their business. These may be enterprises which benefit from laws or regulations designed to attract export-oriented corporations engaged in manufacturing processes, including the assembly of components manufactured elsewhere; offshore enterprises also include international trading corporations and financial intermediaries including insurance corporations. Even though they may be located in specially designated zones, be exempt from customs or exchange regulations, or enjoy other privileges or special concessions, they are still treated as residents of the country in which they are located and in which their production takes place.

89. Conversely, a resident corporation may have subsidiaries which are resident abroad or branches which are located abroad. The foreign branches of both corporate and unincorporated enterprises have to be treated as quasi-corporations which are resident in the country in which they are engaged in production.

G.5.1 Foreign branches

90. Although the concept of a foreign branch may appear relatively clear at first sight, it needs to be recognized that the notion of residence as applied both to units of production and the personnel who work in them is becoming increasingly blurred for certain types of production, especially in the case of large corporations whose economic interests may extend into several countries. The development of fast and frequent air transport, together with dramatic improvements in telecommunications, including on-line links between computers in different countries, have made it increasingly feasible for corporations to engage in production over much wider geographical areas than before. This extension applies particularly to types of production which are geared to the requirements or specifications of individual customers or clients: notably construction and various kinds of services provided to other enterprises - financial services, advertising and market research, management consultancies and similar business services, professional or scientific services such as accountancy, surveying or architectural services and so on. A characteristic feature of many of these services is that they do not have to be produced in a fixed location so that the actual place of production of such services is mobile in a way that the production of agricultural or manufactured goods cannot be. It should be noted that the locations in which construction activities are carried out are mobile in the same sense, although to a lesser extent.

91. Large corporations in these fields may be dependent on business from foreign clients as much as from domestic clients. They may therefore engage in productive activity abroad by sending teams of their staff on specific contracts or assignments to provide services, or other output, to clients abroad in much the same way as they service domestic clients. In contrast to most goods which have to be first produced domestically and then subsequently exported, production teams working abroad on special contracts or projects are exporting their services, or other outputs, at the same moment as they produce them. It should be noted, however, that the production can only lead to the export of a service if the production itself is classified as domestic production - i.e., productive activity carried out by a resident - notwithstanding the fact that the physical process of production takes place outside the limits of the domestic territory.

92. It is crucial, therefore, to the definition of both Gross Domestic Product and exports and imports, to decide at what point production carried out by the personnel and capital equipment of a resident enterprise outside of its economic territory ceases to be classified as part of the domestic production and value added of that enterprise. This question can be rephrased by asking at what point should the enterprise be deemed to have created a quasi-corporation which is treated as resident in the country in which it operates - that is, a foreign branch which can be said to have a centre of economic interest in that country.

G.5.1.1 Quasi-corporations located abroad

93. The circumstances in which productive activity carried out abroad should be treated as the production of a foreign branch are when a production unit is set up for the purpose of engaging in a significant volume of production over an indefinite or long period of time, e.g., a construction project which is expected to take several years to complete. In these circumstances, the production unit will usually have to establish a significant physical presence in the country by purchasing or renting land or buildings and by acquiring other types of fixed assets. The local managers will recruit at least some staff locally on contracts of indefinite duration and pay social security or insurance contributions for such staff, if required to do so. They will assume responsibility for the management of the production process itself and also for the management of the funds needed to finance the production process. This implies that they will maintain a complete set of accounts covering not only local activities and transactions but also all transactions with the parent enterprise. Finally, the profits generated are likely to be subject to tax in the country in which the production takes place.

94. A production unit of this kind has all the attributes of a quasi-corporation and should be treated as such. Quasi-corporations of this kind are described as "foreign branches" and they are treated as residents of the country in which they operate.

95. On the other hand, following the general guidelines on residence, when the productive activity is carried out abroad on a specific contract, project or assignment which is completed, or expected to be completed, within less than one year the enterprise should not be deemed to have established a quasi-corporation for the purpose. A specific contract, or project or assignment of this nature is not sufficient evidence that the parent enterprise has acquired a centre of economic interest in that country. However, as already emphasized, the one-year guideline needs to be used judiciously. For example, the installation of capital equipment abroad is typically an activity of limited duration which does not signal any lasting economic interest in itself so that even if it takes rather more than a year to complete it should be normally treated as being carried out directly by the enterprise itself and not by a foreign branch created for the purpose. On the other hand, a major construction project activity which requires the enterprise to establish, manage and operate a large construction site abroad cannot be carried out without the enterprise effectively establishing a quasi-corporation for the purpose. The construction must be treated as the production of a foreign branch. In any case, it must be remembered that no quasi-corporation can be identified in practice unless there exists a complete set of accounts in which transactions with the parent enterprise, including transfers of income or capital between them, can be identified.

96. An employee of a parent enterprise who works continuously in a foreign branch for one year or more should normally be treated as a resident of the country in which the production takes place, whereas personnel sent on assignments of less than a year's duration continue to be treated as residents of their home country.

G.5.2 Units operating mobile equipment

97. The principles outlined above must be applied to production units which operate mobile equipment such as ships, vehicles, aircraft, floating platforms, etc. outside the limits of the economic territory in which the enterprise to which such units belong itself is resident. Such equipment may be operated in other countries, in international waters or airspace, or both. As noted at the beginning of this section, residence is not an attribute which can be applied to a piece of machinery or equipment as such, however large. The question is to determine the residence of the units which operate such equipment.

98. The first case to be considered is that of an enterprise which is engaged in production in two or more countries simultaneously by transporting goods or persons between them: for example, an enterprise which operates a railway network, or road, sea, or air transport system linking two or more countries, or transports electricity, gas or oil from one country to another by cable or pipeline. When such operations are carried out on a regular and continuing basis it is clear that the enterprise has a centre of economic interest in each of the countries concerned, so that quasi-corporations in the form of foreign branches need to be identified in each of the other countries. This procedure is not automatically justified by the mere fact that productive activities are taking place in different countries but on the presumption that a substantial volume of production is being carried out on a regular basis which requires permanent production units to be established in each of the countries concerned. Moreover, these units should have the requisite accounting information to enable them to be treated as quasi-corporations. Any vehicles, ships or aircraft which move regularly between the various countries concerned should be treated as being owned by the parent enterprise, whereas any structures or capital equipment which remain in one country are treated as being owned by the branch (or parent enterprise) resident in that country. Funds transferred from the parent enterprise to a foreign branch to enable the branch to purchase capital goods for its own use constitute a form of foreign direct investment by the enterprise.

99. Many ships, aircraft or other mobile equipment operate most of the time in international waters or airspace without spending a significant amount of time in the economic territory of any one country. Such ships or equipment, together with crews or teams which operate them, cannot be treated as quasi-corporations and their production has to be attributed to the enterprise of which they form an integral part. Thus, their activities are attributed to the country in which the enterprise which operates the equipment is resident. When an enterprise leases a ship, plane or other mobile equipment to a second enterprise for a long or indefinite period (i.e. time charter) the second enterprise is deemed to be the operator. However, when a carrier is chartered to carry cargo or passengers for a single voyage (i.e. voyage charter) there is no change of operator.

100. There are certain exceptional cases in which it may be difficult to determine the residence of the enterprise which operates the equipment because it consists of a corporation which is established by special legislation by two or more governments acting jointly and which is registered in each of the countries

concerned. Examples are provided by corporations such as Air Afrique, Gulf Air, the Scandinavian Airlines System, etc. There are two possible ways of treating such enterprises. One is to allocate all of the transactions to each of the countries concerned in proportion to the amounts of financial capital which they have contributed, or in proportion to their shares in the equity of the corporation. Another possibility would be to treat the corporation as resident in the country in which its headquarters are located and to treat the premises of the corporation in the other countries as foreign branches, i.e. quasi-corporations which are resident in the country in which they are located. On balance, the first method is preferable, but both ways of treating such corporations are consistent with the general principles of the System and the choice between them may be made on the basis of statistical convenience.

101. Another situation in which it may be difficult to determine the residence of the operator is in the case of ships flying "flags of convenience", such ships being registered in a different country from that in which the enterprise operating the ship is resident. In principle, the production is to be attributed to the country in which the operator is resident as distinct from that in which the ship is registered. The situation is further complicated if the enterprise owning the ship establishes a branch in another country from which the operations of the ship, or other mobile unit, are managed in order to secure tax or other advantages. In such a case, the shipping activities should, in principle, be attributed to the country in which the branch is resident as the branch is treated as a quasi-corporation and separate institutional unit for purposes of the System. It is well known that it is often difficult to obtain the appropriation information in this area, but this is essentially a practical problem created by the complexities of the ways in which shipping activities may be organized which cannot be solved by introducing special conventions into the System.

G.6 Regional central banks

102. A regional central bank is an international financial institution which acts as a common central bank for a group of member countries. Such a bank has its headquarters in one country and maintains national offices in each of the member countries. Each national office acts as the central bank for that country and must be treated as a separate institutional unit from the headquarters institution. Each national office is obviously a resident unit of the country in which it is located. The financial assets and liabilities of a regional central bank should be allocated among the national offices in proportion to the claims which they have over its collective assets.

G.7 The residence of non-profit institutions

103. A non-profit institution, like a corporation, is resident in the country under whose laws and regulations it was created and in which its existence as a legal or social entity is officially recognized and recorded. In practice, the residence of the vast majority of NPIs may be determined without ambiguity. When an NPI engages in charity, or relief work, on an international scale, however, it is necessary to specify the residence of any branches it may maintain in individual countries in dispensing relief. In this case, it seems appropriate to use the guideline of length of time to determine the residence of such branches or units. If an NPI maintains a branch or unit for one year or more in a particular country that branch or unit should be considered as a resident NPI of that country financed largely or entirely by transfers from abroad and whose non-market output may be valued on the basis of the costs of production incurred.

CHAPTER IV: SECTORS AND SUBSECTORS*

A. INTRODUCTION

1. The national economy is partitioned into a number of sectors which in turn are partitioned into sub-sectors. The sectors and sub-sectors therefore consist of groups of resident institutional units. The System calls for a complete set of accounts, including balance sheets, to be compiled for each sector and sub-sector, although it is recognised that it is often not possible to obtain complete sets of accounts in practice through lack of data.

2. Non-resident institutional units are grouped together and described as the "rest of the world". The rest of the world is not analogous to a domestic sector. Obviously, it is not proposed to calculate a complete set of accounts for the rest of the world and, for non-residents, the System records only their transactions with residents, their claims on residents or other inter-relationships.

A.1 The four sectors of the economy

3. In the System, the resident institutional units which make up the national economy are grouped into four main sectors as follows:

- The non-financial corporate sector;
- The financial corporate sector;
- The general government sector;
- The household sector.

The financial corporate sector consists of all corporations or quasi-corporations whose principal activity is financial intermediation or facilitating financial intermediation. The non-financial corporate sector consists of all other corporations and quasi-corporations.

A.1.1 The relationship between sectors and institutional units

4. A cross classification of institutional units by sector and by type of institutional unit as described in the previous chapter is illustrated schematically in Table A. It can be seen that, with one exception, each of the main sectors groups together all institutional units of the same type: thus,

(1) All corporations and quasi-corporations are allocated either to the non-financial or to the financial corporate sector;

(2) All government units and social security funds are allocated to the general government sector;

(3) All households are allocated to the household sector;

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

Table A

Main Types of institutional unit	The sector of the System			
	Non-financial corporate sector	Financial corporate sector	General Government sector	Household sector
Corporations (including quasi - Corporations)	Non-financial Corporations	Financial Corporations		
Non-profit institutions	Non-financial market NPIs	Financial market NPIs	Non-market NPIs financed and controlled by government	Non-market NPIs serving households
Government units (including social security funds)			Government units (including social security funds	
Households				Households

Note: all quasi-corporations, whether owned by households,government units or non-resident institutional units, are grouped with actual corporations for purposes of sectoring.

(4) However, non-profit institutions may belong in any of the four sectors, depending on the kind of non-profit institution involved.

5. Thus, in order to understand the precise composition of the four sectors of the System, it is only necessary to explain the way in which non-profit institutions are allocated to sectors.

A.1.2 The sectoring on non-profit institutions

6. Non-profit institutions are first divided between those engaged in market production and those engaged in non-market production. All NPIs engaged in market production are grouped with corporations and therefore allocated to the financial or non-financial corporate sectors, while those engaged in non-market production are grouped with either government units or households.

A.1.2.1 Market non-profit institutions

(a) NPIs providing education, health or other goods or services at fees or prices which cover all or most of their costs of production are included in the non-financial corporate sector.

(b) NPIs such as trade associations which are financed by groups of enterprises and which provide services to those enterprises are included in the non-financial corporate sector if they serve non-financial enterprises or in the financial sector if they serve financial enterprises: the contributions which such NPIs receive from their members are implicitly treated as if they were payments for services rendered.

A.1.2.2 Non-market non-profit institutions

(a) NPIs providing services to the community which are majority financed and controlled by government units are grouped with these units and included in the general government sector: for example, agencies responsible for setting public standards in fields such as health or the environment.

(b) NPIs providing non-market goods or services to households are grouped with households and included in the household sector: for example, churches, trade unions, political parties, professional associations, charities, and so on.

A.2 The principles governing sectoring and sub-sectoring

7. Apart from non-profit institutions, there is a one-to-one correspondence between the main categories of institutional units - namely, corporations, government units and households - and the main sectors of the System, with corporations being subdivided into financial and non-financial corporations. However, different kinds of institutional units behave in different ways and have different economic objectives. The types of activities and transactions in which they engage to vary significantly and it is for this reason that the economy is divided into sectors and sub-sectors. For example, the economic objectives and behaviour of corporations and households are quite different: corporations are created for the purpose of producing for a profit and do not engage in final consumption, whereas final consumption is the ultimate objective of household economic activity and the reason for which they engage in production. The economic objectives of government units are clearly different again.

8. Thus, while the criteria used to define the sectors and sub-sectors of the System relate to the characteristics of the institutional units, the purpose of sectoring is to group together institutional units whose economic objectives and behaviour are similar. Ideally, sectors and sub-sectors should be defined in such a way as to minimize differences in behaviour within sectors while maximizing such differences between sectors. By so doing, it becomes possible to distinguish the complex interactions which take place between the different parts of the economy. This information is needed for macro-economic analysis, modelling and policy-making and is the main purpose for compiling macro-economic accounts.

9. Sectors and sub-sectors are also needed in order to be able to identify particular groups of institutional units which may be the target of particular economic and social policy measures. For example, it may be desirable to identify particular groups of households in order to know the extent to which they

participate in, or benefit from, the process of economic development within a country or the extent to which they are affected by particular government policy measures. Governments may also wish to monitor the behaviour of certain groups of institutional units more closely than others: for example, it may be important to distinguish corporations subject to control by non-residents, not merely because they are liable to behave differently but because the government may wish to know which parts of the economy are subject to influence from abroad.

A.2.1 Dual or multiple sectoring

10. Given the objectives of sectoring it follows that the way in which the four main sectors of the economy are divided into sub-sectors depends partly on the characteristics of the economy in question and partly on the objectives of government policy. Thus, while one specific method of sub-sectoring is recommended in the System as a guide to compilers and users of the accounts, it is not suggested that this is necessarily the optimal method of sub-sectoring for all types of economies at all levels of economic development. Alternative methods may be more appropriate for some countries and it must be emphasized that such alternatives are not in any way inconsistent with the System. Indeed, it will be seen from the following sections, that for three out of the four main sectors it is not possible to recommend one particular method of sub-sectoring without qualification. In the case of the household sector in particular, it is clear that no one method of sub-sectoring can be suitable for all countries, and compilers of the accounts are advised to be flexible in their approach to the sub-sectoring of the household sector.

A.2.2 Sectors and industries

11. The System calls for two kinds of production accounts to be compiled. A simplified production account has to be compiled for each individual sector or sub-sector as the first account in the regular sequence of accounts which make up the System as a whole. The account is simplified in the sense that neither the outputs produced nor inputs consumed need to be desegregated by type of good or service. In addition, a second, and quite different, set of production accounts is compiled by industry. This set of accounts forms the use matrix of the System in which the columns refer to industries and the rows refer to the individual kinds of goods and services consumed as intermediate inputs or the components of gross value added. This matrix together with the make matrix, which shows the sources from which the supplies of different kinds of goods and services originate, is an integral part of the input-output tables of the System.

12. It is preferable, so far as possible, to utilize production units whose output consists of only a single type of good or service when the data are to be used for analyses in which the technology of production is important, including input-output analysis. The System therefore does not recommend the use of institutional units for the compilation of production accounts by industry and proposes that establishments be used instead. When a single institutional unit, whether a corporation or an unincorporated enterprise, is engaged in two or more different kinds of productive activity at the same time, it may be possible to partition it into two or more establishments each of which is engaged in only a single kind of activity and the System recommends that enterprises should be partitioned in this way, whenever appropriate and feasible, for purposes of compiling production accounts by industry.

13. Industries are defined as groups of establishments classified by type of productive activity, whereas sectors are defined as groups of institutional units. Different establishments belonging to a single institutional unit may therefore be allocated to different industries. As industries are not groups of institutional units, they are not sectors by definition. A breakdown by industry is thus not an alternative way of sectoring the economy as it cannot be obtained by regrouping institutional units. Industries and sectors do not represent a "dual sectoring" of the economy and the use of this terminology should be avoided. However, as mentioned in the previous section, it is perfectly possible to have dual sub-sectoring within the system by grouping a given set of institutional units in more than one way. In order to strengthen the links between the production accounts by industry and sector, it is proposed to cross-classify the gross values added of establishments both by type of industrial activity and by the type of sector to which the establishment belongs. In this way, it is possible to map gross value added and components from the industries in which they originate to the sectors which receive them.

B. THE NON-FINANCIAL CORPORATE SECTOR AND ITS SUB-SECTORS

14. The non-financial corporate sector consists of two kinds of institutional units:

(1) All resident corporations and quasi-corporations which are not principally engaged in financial intermediation or in activities which are auxiliary to financial intermediation.

(2) All resident non-profit institutions engaged in market production which produce goods or non-financial services.

15. Corporations are entities created for the purpose of producing goods or services for profit which are treated as separate entities from the units which own or control them. The characteristics of corporations are described in the previous chapter. Non-profit institutions engaged in market production are typically either institutions which provide health or educational services for fees which cover most or all of their costs of production or institutions such as trade associations which provide services to the groups of enterprises which finance them.

B.1 The sub-sectors of the non-financial corporate sector

16. Three sub-sectors are distinguished, namely:

(1) public non-financial corporations;

(2) national private non-financial corporations;

(3) foreign controlled non-financial corporations.

B.1.1 Public non-financial corporations

17. These consist of all resident non-financial corporations and quasi-corporations which are subject to control by government units. As explained in the previous chapter, control over a corporation is defined as the ability to appoint its directors and determine corporate policy. The government may secure control over a corporation:

(1) by owning more than half the voting shares or otherwise controlling than half the shareholders' voting power; or

(2) as a result of special legislation, decree or regulation which empowers the government to appoint the directors.

18. In order to control more than half the shareholders' voting power, a government unit does not necessarily have to own any of the voting shares itself. A public corporation could be a subsidiary of another public corporation in which the government owns a majority of the voting shares.

19. Public corporations do not include any NPIs which are majority financed and controlled by government units, as such NPIs are included in the general government sector.

B.1.2 National private non-financial corporations

20. These consist of all resident non-financial corporations and quasi-corporations which are not controlled by government or by non-resident institutional units. This sub-sector includes all the market NPIs which are included in the non-financial corporate sector.

B.1.3 Foreign controlled non-financial corporations

21. These consist of all resident non-financial corporations and quasi-corporations which are controlled by non-resident institutional units, control being understood as the power to appoint the directors of the corporations, or managers of the quasi-corporations. The sub-sector includes:

(1) subsidiaries of non-resident corporations (but not associates of non-resident corporations);

(2) corporations which are controlled by a non-resident institutional unit, or group of non-resident units acting in collusion, which is not itself a corporation: for example, a corporation which is controlled by a foreign government;

(3) the resident branches or other agencies of non-resident corporate or incorporated enterprises which are engaged in a substantial amount of production on the economic territory and which are treated as resident quasi-corporations.

C. THE FINANCIAL CORPORATE SECTOR AND ITS SUB-SECTORS

22. The financial corporate sector consists of all resident corporations or quasi-corporations which are principally engaged in financial intermediation or in auxiliary financial activities which are closely related to financial intermediation. Because financial intermediation is inherently different from most other types of economic activity and because of the importance of financial intermediation in the economy, the System distinguishes financial from non-financial corporations at the first level of sectoring. It is necessary therefore to describe the principal characteristics of financial intermediation.

C.1 Financial intermediation

23. Financial intermediation may be defined as an activity in which an institutional unit incurs liabilities for the purpose of acquiring financial assets by engaging in financial transactions on the market. The role of financial intermediaries is to channel funds from lenders to borrowers by intermediating between them. They collect funds from lenders and transform, or repackage, them in ways which suit the requirements of borrowers. They obtain funds by incurring liabilities on their own account, principally by taking deposits but also by issuing bills, bonds or other securities. They use these funds to acquire financial assets, principally by making advances or loans to others but also by purchasing bills, bonds or other securities. A financial intermediary does not simply act as an agent for other institutional units but places itself at risk by incurring liabilities on its own account. The nature of the services provided by financial intermediaries is thus quite different from other kinds of services.

C.2 Financial enterprises

24. Financial enterprises are defined in the System as enterprises which are principally engaged in financial intermediation or in auxiliary financial activities which are closely related to financial intermediation. They include enterprises whose principal function is to facilitate financial intermediation without necessarily engaging in financial intermediation themselves. Financial enterprises, therefore consist of all those enterprises (i.e. institutional units as distinct from establishments) whose principal activity is classified under Divisions 65, 66 and 67 of the International Standard Industrial Classification of All Economic Activities (ISIC) Rev. 3.

25. The provision of services which are auxiliary to financial intermediation may be carried out as secondary activities by enterprises whose principal function is financial intermediation or they may be provided by specialist agencies or brokers. The latter consist of agencies such as securities brokers, flotation companies, loan brokers and so on. There are also other agencies whose principal function is to guarantee, by endorsement, bills or similar instruments intended for discounting or refinancing by financial enterprises and also institutions which arrange hedging instruments, such as swaps, options and futures which have evolved as a result of wide-ranging financial innovation. These enterprises provide services which border very closely on financial intermediation, but they do not constitute financial intermediation strictly defined as the enterprises may not acquire financial assets and put themselves at risk by incurring liabilities on their own behalf. However, it is becoming increasingly difficult to draw a clear distinction between true intermediation and certain other financial activities, particularly those involving contingent assets and liabilities. The boundary between financial intermediation and many of the services which are auxiliary to financial intermediation has become rather blurred as a result of continuous evolution and innovation in financial markets.

26. However, this is not the only reason for classifying financial auxiliaries as financial enterprises in the System. As already mentioned, large corporations whose principal function is financial intermediation also tend to provide a wide range of auxiliary services themselves as secondary activities. As a corporation, i.e. institutional unit, has to be classified as a whole, their auxiliary activities would fall within the Financial Corporate Sector of the system anyway, even if a narrower definition of a financial enterprise were to be adopted. On

balance, it seems preferable to include all such activities and not merely those carried out as secondary activities.

C.3 The treatment of unincorporated financial enterprises

27. In many countries, individuals engage in financial intermediation, or in services auxiliary to financial intermediation, by putting themselves at risk personally. For example, in rural areas in developing countries, most loans may be made by village money lenders. Similarly, individuals make a business of buying and selling foreign currency.

28. Unincorporated financial enterprises of this kind are treated in the same way as unincorporated non-financial enterprises: that is, they are included in the financial corporate sector only if they qualify as quasi-corporations. In order to be treated as quasi-corporations they must behave as if they were separate institutional units from their owners and they must have complete sets of accounts which are separable from those of their owners in their personal capacities. As unincorporated financial enterprises above a certain size may become subject to government regulation and control, it is likely that most large unincorporated financial enterprises may qualify as quasi-corporations in practice. However, money lenders, currency changers and similar individuals engaged in financial activities on a small scale cannot usually be treated as quasi-corporations and cannot therefore be included in the financial corporate sector.

C.4 The sub-sectoring of the financial corporate sector

29. Financial corporations and quasi-corporations are grouped into the following sub-sectors:

1. The central bank.
2. Other depository corporations, of which
    2.1 Deposit money corporations.
    2.2 Other.
3. Other financial intermediaries, except insurance corporations and pension funds.
4. Financial auxiliaries.
5. Insurance corporations and pension funds.

30. In addition, financial corporations and quasi-corporations may be grouped in the same way as non-financial corporations and quasi-corporations according to whether they are subject to public, private or foreign control; namely,

(1) Public financial corporations;

(2) National private financial corporations;

(3) Foreign controlled financial corporations.

31. The criteria for determining control are exactly the same as for non-financial corporations as described in paragraphs 20 to 24 above and are not therefore repeated here.

32. The first level of sub-sectoring the financial corporate sector is the breakdown into the five categories of financial corporation listed above (central bank, other depository corporations etc.), the division between public, private and foreign controlled corporations being made at the next level of sub-sectoring. This second breakdown is not relevant in the case of the central bank. The corporations and quasi-corporations which make up the five sub-sectors at the first level are described in the following sections.

C.4.1 The central bank

33. This sub-sector consists of the central bank together with any other agencies or bodies which regulate or supervise financial corporations and which are themselves separate financial corporations (or quasi-corporations). The central bank is the public financial corporation which is a monetary authority: that is, which issues currency and sometimes coins and may hold all or part of the international reserves of the country. The central bank also has liabilities in the form of demand or reserve deposits of other depository institutions and often government deposits.

34. In some countries, some monetary-authority-type functions, such as the maintenance of the international reserves or the issue of currency, may be carried out by an agency, or agencies, of central government which remain financially integrated with central government and are directly controlled and managed by government itself as a matter of policy. Such agencies are not separate institutional units from government and must therefore remain in the general government sector.

C.4.2 Other depository corporations

35. This sub-sector consists of all resident financial corporations and quasi-corporations except the central bank whose principal activity is financial intermediation and which have liabilities in the form of deposits or financial instruments such as short-term certificates of deposit which are close substitutes for deposits in mobilizing financial resources and which are included in measures of money broadly defined.

36. Traditionally, money has been interpreted as a financial instrument which may be used as a unit of account, a medium of exchange, and a store of value. A narrow concept of money is one which focuses on money as an asset which is immediately, universally and legally accepted as a means of payment. Narrow money therefore consists of currency (including coin) plus deposits which are repayable on demand and immediately transferable by cheque, standing order or other means of transferring deposits for the purpose of making payments. In the past, only deposits with certain types of financial corporations, typically called "banks", were universally acceptable for this purpose. However, two developments have led to the use of a more broadly based concept of money. The first is that, as a result of increasing competition and financial innovation, banks have been able to offer other kinds of deposits or facilities which are very close substitutes for narrow money and which can be used for payments purposes with little or no delay or financial penalty, without being technically transferable deposits payable on

demand. The second is that deposits with other kinds of financial corporations (not necessarily describing themselves as "banks") which in the past may not have been repayable on demand or used as a means of payment, have become increasingly transferable, again as a result of financial innovation. They have also become increasingly close substitutes for narrow money on deposit with banks. A broad concept of money is one which embraces all these new kinds of deposits and quasi-deposit liabilities of depository corporations. The need for broader measures of money has been generally accepted for purposes of economic analysis and policy-making, as relationships previously observed to hold between narrow measures of money and levels of economic activity have tended to break down.

37. Given the wide variation in institutional arrangements between countries whose financial systems and markets are at different stages of development and also the continuous innovation in financial markets and instruments over time, it is not possible to provide precise, operational definitions of narrow or broad money which would be appropriate and analytically useful across a range of different countries and which would continue to be valid over any long period of time. The System does not therefore attempt to provide such definitions even though it recognizes the usefulness and importance of the concepts of narrow and broad money themselves.

38. As stated above, the sub-sector "other depository corporations" covers those corporations which have liabilities in the form of deposits or close substitutes for deposits which are included in measures of broad money. "Other depository corporations" cannot be simply described as "banks", however, because they may possibly include some corporations which may not call themselves banks, and which may not be permitted to do so in some countries, while some other corporations describing themselves as "banks" may not in fact be depository corporations as defined above. In general, there is no one-to-one correspondence between "depository institutions" and "banks".

39. When the financial instruments and arrangements within a country are such that it is meaningful and analytically useful to identify a sub-set of depository corporations whose deposits correspond to money in the narrow sense, it is recommended that they should be separately identified. This sub-set is described as "deposit money corporations". It may not always be feasible, however, to subdivide "other depository corporations" in this way.

C.4.2.1 Deposit money corporations

40. These consist of resident depository corporations which have liabilities in the form of deposits payable on demand and which are transferable by cheque or otherwise usable for making payments. Such deposits are included in the concept of money in a narrow sense. These corporations include so-called "clearing banks" which participate in a common clearing system organized to facilitate the transfer of deposits between them by cheques or other means.

C.4.2.2 Other

41. These consist of all other resident depository corporations which have liabilities in the form of deposits which may not be readily transferable or in the form of financial instruments such as short-term certificates of deposit which are close substitutes for deposits and which are included in measures of money broadly defined. These corporations compete for funds with deposit money corporations in financial markets even if they are unable, or unwilling, to incur liabilities in

the form of transferable deposits. They include institutions such as savings banks (including trustee savings banks and savings and loan associations) credit co-operatives and mortgage banks or building societies. It must be emphasized that the terminology used to describe such institutions varies from country to country and the institutions can only be identified by examining their functions rather than their names. They also include post office savings banks or other savings banks controlled by the government provided these are separate institutional units from government. As a result of financial innovation, improved technology in the field of computers and communications, and also financial deregulation in many countries, some of the corporations included under this heading take deposits which although not readily transferable by traditional methods, may increasingly be used for payments purposes and be gradually transformed into deposits which are partially or even wholly transferable with not much delay, difficulty or cost. This simply underlines the difficulty of drawing a clear distinction between narrow and broad money, and the fact that the distinction between "deposit money corporations" and "other" depository corporations may be too blurred to be operational in some countries.

C.4.3 Other financial intermediaries except insurance corporations and pension funds

42. This sub-sector consists of all resident corporations which are primarily engaged in financial intermediation except depository corporations, insurance corporations and pension funds. Financial corporations included under the present heading are those which raise funds on financial markets, but not in the form of deposits, and use them to acquire other kinds of financial assets. The type of corporations which may be included under this heading are those engaged in financing investment or capital formation; for example, investment corporations, corporations engaged in financial leasing, hire purchase corporations and other corporations engaged in the provision of personal finance or consumer credit. As explained below, some financial holding corporations may also be included under this heading.

C.4.4 Financial auxiliaries

43. This sub-sector consists of all resident corporations engaged primarily in activities closely related to financial intermediation but which do not themselves perform an intermediation role. They consist of corporations such as securities brokers, loan brokers, flotation corporations, insurance brokers and so on. They also include corporations whose principal function is to guarantee by endorsement bills or similar instruments intended for discounting or refinancing by financial corporations and also corporations which arrange hedging instruments, such as swaps, options, and futures or other instruments which continue to be developed as a result of wide ranging financial innovation.

C.4.5 Insurance corporations and pension funds

44. This sub-sector consists of resident insurance corporations and autonomous pension funds. Insurance corporations consist of incorporated, mutual and other entities which mainly engage in providing life, accident, sickness, fire or other forms of insurance. Also included are separately organized schemes established by fraternal, friendly and other societies, by depository institutions or by the public authorities in order to provide various forms of insurance on a voluntary basis. Voluntary social security arrangements for certain sections of the community which form part of a more general social security scheme are excluded.

45. The pension funds included here are those which are constituted in such a way that they are separate institutional units from the units which manage them. They are established for purposes of providing incomes on retirement for specific groups of employees. They have their own assets and liabilities and they engage in financial transactions in the capital market on their own account. These funds are organized, and directed, by individual private or public employers, or jointly by individual employers and their employees; and the employees and/or employers make regular contributions. They do not cover pension arrangements for the employees of private or public entities which do not include a separately organized fund or which consist of a separately organized fund, whose reserves are simply added to the reserves of a private employer or invested in securities issued by a private employer.

C.5 The sub-sectoring of some special cases

46. It is useful to specify the treatment of a number of special kinds of corporations or corporations which lie close to the boundary between the financial and non-financial corporate sectors.

C.5.1 Holding corporations

47. As explained in the previous chapter, holding corporations are corporations which control a group of subsidiary corporations and whose principal activity is owning and directing the group. Holding corporations are classified as financial or non-financial on the basis of the preponderant type of activity of the group of corporations they control, taking into account the sizes of the subsidiaries. In the absence of suitable information about the sizes of the subsidiaries, a holding corporation may be classified as financial or non-financial according to whether a majority of the corporations it controls are classified as financial or non-financial. Similarly, financial holding corporations should be allocated to sub-sectors on the basis of the nature of the financial activities which are carried out by the group it controls. For example, if the group of corporations is mainly concerned with insurance, the holding corporation will itself be classified in the sub-sector "insurance corporations and pension funds". If there is no single type of financial activity which is clearly predominant within the group, the holding corporation should be classified in the sub-sector "other financial intermediaries except insurance corporations and pension funds".

C.5.2 Regulatory bodies

48. Bodies which regulate or supervise financial corporations may be classified as financial or non-financial according to their status. Such bodies which are part of government and cannot be treated as separate institutional units - i.e. cannot be treated as quasi-corporations - cannot be allocated to the financial corporate sector. When such bodies are separate financial corporations, or quasi-corporations, they are to be included with the central bank.

C.5.3 Secondary financial activities

49. In recent years, one form of financial innovation has been a substantial growth in activity of a kind traditionally carried out by, or through, financial corporations but which more recently may be done directly by non-financial enterprises themselves. For example, there is a tendency in some countries for producers or retailers of goods to provide consumer credit themselves directly to

their customers. Another example is the tendency for non-financial enterprises in some countries to raise funds themselves by selling their own obligations directly on the money or capital markets. However, provided that:

(1) a non-financial enterprise does not create a new institutional unit, such as a subsidiary corporation, to engage in the financial activity and

(2) the financial activity remains secondary to the principal activity of the enterprise, the enterprise must continue to be treated in its entirety as non-financial. The secondary financial activity does not affect the classification of the enterprise as a whole for purposes of sectoring.

50. The same principle applies to the sub-sectoring of financial enterprises. For example, many central banks also engage in some commercial banking. However, as a single institutional unit, the central bank as a whole, including its commercial banking activities, is classified in the sub-sector "central banks". For the same reason, central bank or monetary-authority-type functions carried out by agencies within the central government which are not separate institutional units are not allocated to the central bank sub-sector.

D. THE GENERAL GOVERNMENT SECTOR AND ITS SUB-SECTORS

51. The general government sector consists of:

(1) the government units which exist at each level of government - central, state or local - within the national economy;

(2) the social security funds operated at each level of government;

(3) non-profit institutions which are majority financed and controlled by government units.

52. As explained in the previous chapter, governments are special kinds of legal entities established by political processes which exercise authority over other institutional units within a given territory. Although their objectives are essentially political, they engage in a wide range of economic activities, including production. Before explaining the sub-sectoring of the general government sector, the treatment of producer units owned by governments needs to be clarified. The establishments in question are unincorporated enterprises owned by governments and must be distinguished from public corporations owned or controlled by government which do not, of course, form part of the general government sector.

D.1 Producer units owned by government

53. There are many unincorporated enterprises owned and operated by government units whose principal, or sole, activity, is the production of goods or services. Their status is similar to that of unincorporated enterprises owned by households which are not separate institutional units from their owners. There are many examples of such enterprises at each level of government - central, state or local: for example,

(a) units producing collective services such as defence and public administration: such producers must all be non-market;

(b) units producing ships, vehicles, aircraft, weapons, munitions, etc. for use by the military, police or security forces;

(c) units producing books or other publications or office equipment;

(d) units engaged in construction or repairs and maintenance;

(e) units providing transport services, computer services, communications, legal services, etc.;

(f) units providing education and health services to households;

(g) units providing recreational or cultural services to households.

54. With the exception of the collective services, or so-called "public good" listed under (a), there is no necessity for governments to produce themselves any of the goods or services listed above as they may be purchased from private producers, whatever use governments intend for such goods or services.

D.1.1 Non-market producers

55. Government producers which supply the goods or services they produce free, or at nominal prices not determined by costs, to individual households or to the community as a whole, are non-market producers. The production of collective services, or "public goods", is always non-market as consumers cannot be made to pay according to their individual usage. The costs of producing of non-market services must be largely, or entirely, met out of taxation or other government resources. Thus, the amounts produced are determined by government policy and the producer units themselves are completely dependent on government finance. They cannot be treated as separate institutional units from the government units which control and finance them and they belong in the same sector and sub-sector as those government units.

D.1.2 Market producers

56. Government producers which sell their outputs at prices which cover most or all of their costs of production are market producers. The amounts bought and sold are influenced by market forces and the costs of production are largely, or entirely, covered out of receipts from sales. Nevertheless, such producers must be treated as integral parts of the government units which own and control them, and sectored accordingly, unless it is appropriate to treat them as quasi-corporations.

57. The criteria used to determine whether an unincorporated enterprise is a quasi-corporation are essentially the same whether the unit is owned by a government unit, a household or a non-resident unit. In order to be treated as a quasi-corporation, the unincorporated enterprise must be managed in much the same way as a separate corporation and it must have a complete set of accounts covering all aspects of its productive activities. It must be possible to delineate the finances of a quasi-corporation from those of its owner and to identify transfers of income and capital between them. In order to be treated as a government quasi-corporation, therefore, the government must allow its management considerable discretion not only with respect to the management of the production process but also the use of funds. Government quasi-corporations must be able to maintain their own working balances and business credit and be able to finance some or all

of their capital formation out of their own savings, depreciation reserves or borrowing. The ability to distinguish transfers of income and capital between quasi-corporations and government implies that their operating and financing activities cannot be fully integrated with government revenue or finance statistics in practice, despite the fact that they are not separate legal entities. Thus, the net operating surplus of a government quasi-corporation is not a component of government revenue, and the accounts for government will record only the actual or imputed transfer of income and capital between the quasi-corporation and government.

58. As production for the market is not a typical government activity, it is advantageous to be able to treat government market producers as quasi-corporations whenever the circumstances are appropriate and requisite accounting data are available. Government owned quasi-corporations are, of course, allocated to the financial or non-financial corporate sectors, depending upon the nature of their production.

D.1.3 Producer units within government

59. It follows from the above that the producer units which remain within the general government sector fall into one of three main categories:

(a) producers engaged in the production of non-market goods or services, whether individual or collective, for purposes of final consumption; the amounts of such goods and services produced reflect the general social or political objectives and priorities of government;

(b) units which produce goods or services to be used for purposes of intermediate consumption, or capital formation, by other government agencies but which do not recover their production costs from sales to these agencies: these may include government printing offices, munitions factories, transport agencies, computer or communications agencies, and so on;

(c) producers which supply goods or services for sale to the public but which cannot be treated as quasi-corporations because they are not sufficiently independent or lack the requisite accounting data.

D.2 The sub-sectoring of the general government sector

60. Two alternative methods of sub-sectoring the general government sector are proposed in the System. One method is as follows:

(1) Central government;

(2) State government;

(3) Local government;

(4) Social security funds.

61. The alternative method is as follows:

(1) Central government plus social security funds operating at the central government level;

(2) State government plus social security funds operating at the state government level;

(3) Local government plus social security funds operating at the local government level.

62. As explained more fully in a later section, the choice between the two methods of sub-sectoring depends mainly on the size, or importance, of social security funds within a country and on the way in which they are managed. In some countries, there may not exist a proper intermediate level of government between central and local government, in which case the sub-sector "state government" is not distinguished.

D.3 Central government

63. The central government sub-sector consists of the institutional unit, central government, plus those NPIs which are majority financed and controlled by central government.

64. Central government is the governmental unit whose political authority extends over the entire territory of the country. It has therefore the authority to levy taxes from all resident institutional units and non-resident units which engage in economic activities within the country. Its political responsibilities include national defence and relations with foreign Governments and it also seeks to ensure the efficient working of the social and economic system by means of appropriate legislation and regulation and also the maintenance of law and order. It is responsible for providing collective services which benefit the community as a whole, and for this purpose may incur substantial expenditures on defence and public administration. In addition, it may incur expenditures on the provision of services, such as education or health, primarily for the benefit of individual households. Finally, it may make unrequited transfers to other institutional units - households, non-profit institutions, corporations or other levels of government - to influence their behaviour or in order to redistribute income and wealth within the economy.

65. Looked at as an institutional unit, central government is exceptionally large and complex. However, it is not feasible or desirable to try to break it down into smaller institutional units. Central government may be composed of many large departments, each of which may be responsible for considerable amounts of expenditure within the framework of the government's overall budget, but they are nevertheless not separate institutional units. Each department is not capable of owning goods and assets, engaging in transactions, incurring liabilities, etc. in its own right - that is, independently of central government as a whole. While each department may have some discretion over the exact way in which it allocates its expenditures, it is not able to fix the total level of its expenditures, nor does it have an independent income. It would not be possible to compile a meaningful, or analytically useful, income and outlay accounts, or balance sheet, for each separate department as if it were a separate legal entity. In practice, the expenditures of all departments have to be determined collectively within the overall constraint of the government's total budget or the policy constraints of any extrabudgetary operations.

66. The departments of central government are often deliberately dispersed geographically and located in different parts of the country, but they nevertheless

remain parts of a single institutional unit. Similarly, if the central government maintains branch offices or agencies in different parts of the country to meet local needs, including military bases or installations which serve national defence purposes, these must also be counted as parts of a single institutional unit for central government. As already noted, however, for purposes of production accounts by type of productive activity, the establishment is used as the statistical unit, and producer units located in different regions are to be treated as different establishments, even though part of a single institutional unit.

67. In some countries, the central government may include units which engage in financial transactions which in other countries would be performed by central banks. In particular, units of central government may be responsible for the issuance of currency, the maintenance of international reserves and the operation of exchange stabilization funds, and also transactions with the International Monetary Fund. When the units in question remain financially integrated with central government and under the direct control and supervision of central government, they cannot be treated as separate institutional units. Moreover, as central government has to be treated as a single, indivisible institutional unit, it follows that whatever monetary authority functions are carried out by central government are recorded in the government sector and not the corporate financial sector. However, because of the analytical importance which is attached to obtaining accounts covering the monetary authorities as a whole, and in order to provide links with other statistical systems, such as government finance statistics and money and banking statistics, it is recommended that the transactions of central government agencies carrying out monetary authority and deposit-taking functions should be separately recorded, so that they can be combined with those of the central bank in special tabulations if desired.

68. Finally, it may be noted that social security funds are treated in the System as separate institutional units at each level of government, even though in some countries their finances may be partially integrated with government. Social security funds are described in the previous chapter. However, treating social security funds as separate institutional units does not, of course, preclude them from being included in the same sector as the government units with which they are associated, and they are so included in the alternative method of sub-sectoring the general government sector.

D.4 State government

69. The state government sub-sector consists of state governments which are separate institutional units plus those NIPs which are majority financed and controlled by state governments.

70. State governments are institutional units exercising some of the functions of government at a level below that of central government and above that of the governmental institutional units existing at a local level. In some countries, especially small countries, state governments may not exist. However, in large countries, especially those which have federal constitutions, considerable powers and responsibilities may be assigned to state governments.

71. From an economic and accounting point of view the distinguishing feature of a governmental unit below the level of central government is that it is a fiscal authority which is entitled to levy taxes on institutional units which are resident in, or engage in economic activities or transactions within, a particular

geographical area (but not other areas). In order to be recognized as an institutional unit it must be able to own goods or assets, incur liabilities and borrow funds, on its own account. It follows that it must be competent to decide how to spend or allocate some, or possibly all, of the taxes or other funds which it receives according to its own policies, within the general rules of law of the country. Although it may receive transfers from central government, some of which may be tied to certain specified purposes, it must also be entitled to raise a substantial proportion of its receipts from sources it controls and to decide how such funds should be appropriated. It should also be able to appoint its own officers, independently of external administrative control. On the other hand, if a regional unit is entirely dependent on funds from central government, and if the central government also dictates the ways in which those funds are to be spent at a regional level, it must be treated as an agency of central government and not a separate institutional unit.

72. When state governments exist in addition to local governments they are distinguished by the fact that their fiscal authority extends over the largest geographical areas into which the country as a whole may be decomposed for political or administrative purposes. When they exist, state governments are usually defined in the constitution and may be easily identified in practice. It is possible that in a few countries more than one level of government may exist between the central government and the smallest governmental institutional units at a local level. In such cases, these intermediate levels of government are grouped together with the level of government, either state or local, with which they are most closely associated for purposes of sectoring in the System.

73. State governments may own, or control, corporations in the same way as central government. Similarly, they may have units which engage in market production, in which case the relevant producer units should be treated as quasi-corporations whenever their operations and accounting records justify this. Social security schemes may also exist at a regional level and are treated as separate institutional units.

D.5 Local government

74. The local government sub-sector consists of local governments which are separate institutional units plus those NPIs which are majority financed and controlled by local governments. In principle, local government units are institutional units whose fiscal, legislative and executive authority extends over the smallest geographical areas distinguished for administrative and political purposes. The scope of their authority is generally much less than that of central government or regional governments. They are often heavily dependent on grants or transfers from higher levels of government, and they may also act as agents of central or regional governments to some extent. However, in order to be treated as institutional units they must be entitled to levy at least some taxes on the institutional units located or operating within their jurisdiction and to incur liabilities by borrowing on their own account; similarly, they must have some discretion over how such funds are spent. They should also be able to appoint their own officers, independently of external administrative control. The fact that they may also act as agents of central or state governments to some extent does not prevent them from being treated as separate institutional units provided they are also able to raise and spend some funds on their own initiative and own responsibility.

75. As they are the government units which are in closest contact with the institutional units resident in their localities, they often provide a wide range of services to local residents, some of which may be financed out of transfers from higher levels of government. The same rules govern the treatment of the production of goods and services by local government units as are applied to central and state governments. Units such as municipal theatres, museums, swimming pools etc. which supply goods or services on a market basis should be treated as quasi-corporations whenever appropriate. Units supplying services such as education or health on a non-market basis remain an integral part of the local government unit to which they belong.

D.6 The alternative method of sub-sectoring

76. The alternative method of sub-sectoring the general government sector is to group the social security funds operating at each level of government with the corresponding government units at that level of government. The two alternative methods of sub-sectoring are designed to accommodate different analytical needs. The decision as to which method is more appropriate in a given country cannot be made *a priori*. It depends on how well organized and important social security funds are and on the extent to which they are managed independently of the government units with which they are associated. If the management of social security funds is so closely integrated with the short or medium-term requirements of the government's general economic policy that contributions and benefits are deliberately adjusted in the interests of overall economic policy, it becomes difficult, at a conceptual level, to draw any clear distinction between the management of social security and the other economic functions of government. Alternatively, in some countries, social security funds may exist in only a very rudimentary form. In either of these circumstances, it is difficult to justify treating social security funds as a separate sub-sector on a par with central, state and local government, and it is more appropriate to use the alternative method of sub-sectoring in which they are grouped with the corresponding government units at each level of government.

E. THE HOUSEHOLD SECTOR AND ITS SUB-SECTORS

77. The *household sector* consists of two kinds of institutional units:

(1) all resident households, and

(2) all resident non-profit institutions serving households.

78. Although households are often regarded primarily as consumption units, in the System households are treated as institutional units which can engage in any kind of economic activity, including production. Households can engage in a number of quite different kinds of productive activity and it is necessary to clarify their treatment as they may have different consequences in the System, including the way in which the household sector is sub-sectored.

E.1 Production in the household sector

79. Production within the household sector refers to production which takes place within producer units which are directly owned and controlled by members of households, either individually or in partnership with other individuals. When members of households work as employees for corporations or government, the

production to which they contribute obviously takes place outside the household sector. Similarly, production within quasi-corporations owned by households takes place outside the household sector.

80. The producer units within the household sector must all come under the general heading of "unincorporated enterprises", although this terminology is admittedly cumbersome when applied to some of the smaller, or highly specialized, producer units within the household sector. Nevertheless, the term "unincorporated enterprise" is appropriate in so far as it emphasizes that the producer unit is not constituted as a legal entity (corporation) which is separate from the household itself. It is not possible from either a legal or an economic viewpoint to separate the unincorporated enterprise from the person, or persons, who own it.

81. The fixed and circulating assets used in an unincorporated enterprise do not belong to the enterprise but to its owner(s) in his (their) personal capacity. The enterprise as such cannot engage in transactions with other economic units. It cannot enter into contractual relationships with other units. It cannot incur liabilities on its own behalf, and the owner is personally liable, without limit, for any debts or obligations incurred in the course of production.

82. The owner of an unincorporated enterprise usually has a dual role to play: first as the entrepreneur who is responsible for the creation and management of the enterprise and second as a worker who contributes labour inputs of a kind which could be provided by paid employees. The establishment of some unincorporated enterprises may require considerable initiative, enterprise and capital equipment. The owner, in his capacity as entrepreneur, has to raise the necessary finance at his own risk and on his own personal security; he has to find suitable premises and purchase, or lease, whatever capital equipment or materials are needed; and he may also have to engage and supervise paid employees. In some cases, the principal role of the owner is to act in this way as entrepreneur, innovator and risk-taker, in which case the surplus which eventually accrues to the owner represents primarily a return to entrepreneurship. In other cases, the principal function of the owner may be to provide labour, often highly skilled professional labour, in which case most of the surplus may, in effect, represent remuneration for work done.

83. Thus, the net surplus arising from the productive activities of an unincorporated enterprise usually represents a mixture of two very different kinds of income, and for this reason it is described as "mixed income" in the System (except for the surplus arising from the production of own-account housing services). The balance between the return to entrepreneurship and remuneration for work done may vary greatly between different kinds of unincorporated enterprises and usually it remains unknown. For many analytical purposes, it would be desirable to separate the element of remuneration for work done from the rest of mixed income. However, it is often very difficult to make a clear separation conceptually, even when complete information is available, and it is not recommended that such a separation should be attempted systematically.

84. There are several different categories of unincorporated enterprise which need to be distinguished from each other.

E.1.1 Unincorporated enterprises selling on the market

85. These consist of enterprises set up for the primary purpose of producing goods or services for sale on the market. They can be engaged in virtually any kind of

productive activity - agriculture, mining, manufacturing, construction or the production of various kinds of services. They can range from single persons working as street traders or shoe cleaners with virtually no capital or premises of their own through to large manufacturing, construction or service enterprises with many employees.

86. Although these enterprises are created primarily for the purpose of producing goods or services for sale, some of the outputs produced may be retained for consumption by members of the household to which the owner belongs. Such goods or services should be included in the outputs of the enterprises and the final consumption of the households, although it may often be difficult to obtain the requisite data in practice, especially if taxes are being evaded in the process. Similarly, some buildings or capital equipment may be shared between production and consumption: for example, vehicles employed in the business may also be used for purposes of final consumption. The fact that capital goods may be shared in this way underlines the impossibility of legally separating an unincorporated enterprise from its owner who is perfectly entitled to use any capital goods which he owns in any way that he sees fit. The use of capital goods partly for production and partly for consumption is quite proper in itself (although the tax authorities may need to be suitably informed).

E.1.2 Unincorporated enterprises engaged in own-account production

87. These consist of enterprises which are created for the primary purpose of producing goods or services for own consumption or own capital formation. They may be divided into three main groups.

E.1.2.1 Own-account production of goods

88. Unincorporated enterprises engaged on the own-account production of goods consist of:

(1) subsistence farmers or others engaged on the production of agricultural goods;

(2) households engaged in the construction of their own dwellings or other structures for their own use, or in structural improvements or extensions to existing dwellings or structures;

(3) households engaged in the production of other goods such as cloth, clothing, furniture, other household goods, foodstuffs (other than meals for immediate consumption), etc. Unincorporated enterprises engaged primarily on the own-account production of goods may, of course, produce more than they require for their own needs, in which case they may sell the difference on the market.

E.1.2.2 Own-account production of services

89. Only two categories of services produced by unincorporated enterprises for own consumption are included within the production boundary of the System:

(1) owner-occupiers housing services; owner-occupiers are deemed to create unincorporated enterprises in which they use their own houses to produce housing services for their own consumption.

(2) domestic services produced by paid employees - servants, cooks, gardeners, etc.; households are deemed to create unincorporated enterprises in which they employ paid staff to produce services for their own consumption.

90. The own-account production of these services does not generate mixed income. There is no labour input into the production of own-account housing services so that any surplus arising does not contain an element which can be attributed to work done by the owner. The surplus generated by the own-account production of domestic services is always zero, by convention, as the value of the output produced is assumed to be equal to the value of the compensation of employees paid to the domestic staff, and no other inputs are recognized.

E.2 The sub-sectoring of the household sector

91. The household sector is first divided into two sub-sectors as follows:

(1) resident households excluding non-profit institutions serving households;

(2) resident non-profit institutions serving households.

The first sub-sector, therefore, consists of households proper, which must themselves be divided into sub-sectors. The System assigns high priority to the sub-sectoring of households proper, even though technically this constitutes a second level of sub-sectoring.

92. The grouping of individual households into sub-sectors is made on the basis of the socio-economic characteristics of the household's "reference person". The reference person is not necessarily the person who other members of the household would regard as the "head of household" as this status may be accorded on grounds of seniority rather than economic importance. In principle, it would be desirable for the reference person to be the person who both has the largest income and makes the major decisions with regard to the collective consumption of the household. As the person who makes the major expenditure decisions does not necessarily have the largest income, it is recommended that, in general, the reference person should be the person with the largest income. In this context, the imputed income which owner-occupiers receive from the production of housing services may be ignored, but not other types of imputed income.

93. Households are divided into four sub-sectors according to whether the reference person is:

- an employer: that is, the owner of an unincorporated enterprise with paid employees;
- an own-account worker: that is, the owner of an unincorporated enterprise without paid employees;
- an employee;
- the recipient of property or transfer incomes.

The recipients of property or transfer incomes are a heterogeneous group and it is desirable to subdivide them, when possible. Accordingly, a third level of sub-sectoring is introduced in which households whose reference person is the recipient of property or transfer incomes are divided into three further sub-sectors depending upon whether the principal source of income of the reference person is:

- property income;
- a retirement pension, or other form of pension;
- another form of transfer income.

Pensions received under social security schemes are transfers, whereas pensions paid out of autonomous pension funds are not transfers, or even incomes, but a form of dissaving in which those households receiving pensions are treated as collectively running down the assets which they built up as a result of saving during their working lives. For purposes of sub-sectoring the household sector, however, those households for which the principal resources of the reference person consist of retirement pensions received from an autonomous pension fund should be classified in the same way as those whose principal income is a pension received as a transfer under a social security scheme.

E.3 Alternative ways of sub-sectoring the household sector

94. There are several different criteria which can be applied for purposes of sub-sectoring the household sector. For example, households proper can be grouped into sub-sectors according to:

- the location of household, distinguishing between rural, urban and metropolitan areas, or between different regions of the country;
- the total income, or total money income, of the household; furthermore, for those households for which the reference person is economically active - that is, an employer, an own-account worker or an employee - it is possible to introduce further sub-sectors according to:
    - the qualifications or level of skill of the reference person;
    - the industry in which the reference person works, distinguishing at least between agriculture, industry and services.

95. It is particularly important for many developing countries to be able to distinguish between the formal and informal sectors of the economy, or alternatively between those which use modern or traditional methods of production. Although the importance of these distinctions has been stressed by many users and analysts, it is difficult to provide criteria for distinguishing the formal from the informal sectors which can be automatically applied across a wide range of countries with different kinds of economic structures and at different stages of economic development. However, the difficulty of finding universally acceptable criteria is no reason for not applying specific criteria which may be appropriate to the particular circumstances of an individual country.

96. The System has to be applied flexibly, and not rigidly, and the adaptation of the System to countries in different circumstances is the subject of a special chapter. As explained in the previous section, countries are already faced with a choice with regard to the most appropriate way of sub-sectoring the general

government sector where the System does not assign priority to one particular method of sub-sectoring. In the case of the household sector, however, there are clearly several different alternative ways of sub-sectoring, and the particular method of sub-sectoring explained above is only one suggestion which should not necessarily be given priority. In order to implement any of the possible methods of sub-sectoring the household sector suggested above, individual countries are obliged to make their own decisions about what they consider to be appropriate criteria - for example, with regard to location or levels of skill - for which international guidelines may not be helpful. Thus, the fact that specific guidelines may not be proposed here should not be interpreted as implying that the criteria in question are less important for purposes of economic analysis and policy-making.

97. The selection of an appropriate method of sub-sectoring the household sector seems to be the simplest method of introducing into the System major distinctions such as that between the formal and informal sectors. It is doubtful whether a distinction of this kind has much relevance to corporations or to government units, so that classifying households according to the type of productive activity in which economically active reference persons are engaged may give a good approximation to the distinction which is sought. Once a particular method of sub-sectoring has been decided upon, it should, in principle, be implemented throughout all the accounts of the System.

F. THE REST OF THE WORLD

98. The sectors of the System are obtained by desegregating the national economy to obtain more homogeneous groups of resident institutional units. The rest of the world, which in practice consists of all non-resident institutional units which enter into transactions with resident units, or have other economic links with resident units, is not a sector in this sense. Nevertheless, it is often convenient to refer to the rest of the world as if it were a sector.

99. In principle, the rest of the world consists of all non-resident institutional units. The accounts, or tables, for the rest of the world are, however, confined to those which record transactions between residents and non-residents or other economic relationships, such as claims by residents over non-residents, and vice versa. The rest of the world includes certain institutional units which may be physically located within the boundary territory of a country: for example, foreign enclaves such as embassies, consulates or military bases, and also international organizations.

G. AN OVERVIEW OF THE SECTORS AND SUB-SECTORS OF THE SYSTEM

100. The sectors and sub-sectors of the System may be summarised in tabular form as follows.

THE NATIONAL ECONOMY

1. The non-financial corporate sector

    1.1 Public non-financial corporations

    1.2 Private non-financial corporations

    1.3 Foreign controlled non-financial corporations

2. The financial corporate sector

2.1 The central bank

2.2 Other depository corporations

2.2.1 Deposit money corporations

2.2.2 Other

2.3 Other financial intermediaries except insurance corporations and pension funds

2.4 Financial auxiliaries

2.5 Insurance corporations and pension funds

Note: Each of the sub-sectors 2.2 to 2.5 should be further sub-sectored to distinguish:

- public financial corporations
- private national financial corporations
- foreign controlled financial corporations

3. The general government sector

Two alternative methods of sub-sectoring are proposed:

3.1 Central government

3.2 State government

3.3 Local government

3.4 Social security funds

or

3.1 Central government*

3.2 State government*

3.3 Local government*

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* Including the social security funds operating at each level of government.

4. The household sector

4.1 Households proper (i.e., excluding non-profit institutions serving households) whose reference persons are:

- 4.1.1 Employers
- 4.1.2 Own-account workers
- 4.1.4 Recipients of property or transfer incomes,

of whom:

- 4.1.4.1 Recipients of property incomes
- 4.1.4.2 Recipients of pensions
- 4.1.4.3 Recipients of other transfer incomes

4.2 Non-profit institutions serving households

Note: Alternative methods of sub-sectoring sub-sector 4.1 may be appropriate in particular countries, while more than one method of sub-sectoring sub-sector 4.1 may be used in parallel.

THE REST OF THE WORLD

CHAPTER V: THE PRODUCTION ACCOUNTS*

A. Introduction

1. This chapter describes the production accounts used in the System. In the first part, the boundary of production is defined: that is, the set of activities which the System treats as productive is delineated. This is followed by a detailed description of the components of the two main flows of goods and services which make up a production account, namely, outputs and intermediate inputs. The chapter concludes with a discussion of alternative methods of valuation and the properties of value added as the balancing item in the production account.

B. The production boundary

2. Production accounts record the values of the goods and services involved in the actual or imputed transactions which are associated with production processes. The accounts record transactions as distinct from the physical processes themselves. The concept of production in an economic sense is dependent on the actual, or potential, existence of some kind of markets, both for the inputs to, and outputs from, the production process. The outputs from processes of production must always consist of goods and services which can be transacted on markets. The first objective, therefore, is to clarify the meaning of goods and services within the System.

B.1 Goods

3. Goods are objects for which a demand exists and over which ownership rights can be established. The ownership of goods can be exchanged in transactions between different economic units and markets are organized for this purpose. The production of a good, that is the physical process by which it is created, is quite a different activity from the subsequent exchange of that good on a market. At the time a good is produced, the producer may not know the terms on which it will subsequently be possible to exchange it or even whether or not he will eventually decide to exchange it. Moreover, the ownership of the same good may be exchanged any number of times after it has been produced.

B.2 Services

4. The distinguishing feature of a service is that it is produced for the benefit of a specific individual or institutional unit, or group of individuals or units. By the time the production of a service is completed it must also have been delivered to the consumer or user. If the production of something can take place quite separately from its delivery so that it can be into stock and subsequently traded and retraded as many times as described, it is evidently a good in an economic sense. Services, on the other hand, are produced to order: they are provided directly to units, or groups of units. The organization of both the production and market of services is thus fundamentally different from that of goods, and it is for this reason that they need to be distinguished from goods for economic purposes.

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

5. The producer of a service is engaged by the consumer to secure some improvement (or prevent a deterioration) in the condition of the latter. In practice, the improvements may take several quite different forms: for example:

(a) an improvement in the situation or condition of a good belonging to an institutional unit, resulting from the provision of transportation, repair, servicing, cleaning or other services;

(b) an improvement in the health, appearance, skills, knowledge, information or other attributes possessed by an individual resulting from the provision of health, education, information, consultancy, entertainment or other services;

(c) an improvement in the security or financial situation of a unit by the provision of insurance, loans, credit or other financial facilities.

6. As the provision of a service brings about some change in the situation or condition of the consuming unit, the service is usually incorporated in some good, asset or person which is not itself part of the output of the service producer. It may be difficult, therefore, to isolate the service from the good, asset or person in which it is incorporated and for this reason it may be impossible to define general units of quantity, such as numbers, weight, area, power, etc. which can be used to measure the volume of services produced. The problem is not that services lack substance but they are not separate entities with physical attributes which can be measured independently of the persons, goods or assets in which they are incorporated or with which they are associated.

7. The improvements brought about by service production may last for varying lengths of time: some changes may be transitory but others, such as improvements in health, skills, knowledge etc. brought about by the production of health or education services, may last for very many years. Thus, many services are similar to durable goods in that they bring benefits, either to producers or consumers, over long periods of time. Expenditures on such services are clearly investment type expenditures rather than consumption expenditures, even though they may not result in the creation of stocks of new assets.

B.2.1 Collective services

8. A single process of production may provide services to a group of persons simultaneously. For example, groups of persons may be transported together in the same plane, ship, train or other vehicle, or they may be instructed or entertained in groups by attending the same class, lecture or performance. Although such services are provided to groups of people simultaneously, the beneficiaries can be clearly segregated from the non-beneficiaries and required to pay for the service if so desired. However, certain services are provided to the community as a whole and cannot be financed in this way because individual acts do not occur. These services are described as collective services. They are mostly designed to prevent a deterioration in the situation of the community and its members and they consist essentially of the maintenance of law and order and the protection of individuals and their property from events such as violence, theft, disease, pollution, fire and so on. Most are financed by the State out of taxation or other government revenues because of market failure: that is, because individuals cannot be charged according to their individual usage. In addition, some services of this kind may be provided to selected groups of individuals by non-profit institutions and paid for out of membership subscriptions or dues.

B.3 The boundary of economic production

9. Production in an economic sense is an activity which produces goods or services which are capable of being delivered, or provided, to other economic units. It is this fact that makes possible the division of labour, the emergence of specialist producers and the possibility of production for the market. However, economic production also includes collective services which, as just noted, cannot be offered for sale on the market to individual consumers and whose production has to be financed in other ways. The boundary between economic production and other activities thus does not depend on whether it is feasible to sell the output on a market but on the rather more inclusive criterion of whether the outputs produced can be delivered, or provided, to other economic units. It follows that all production which is marketable is economic production, but not all economic production is marketable.

10. The kinds of activities which are not productive in an economic sense are basic human activities such as eating, sleeping or taking exercise which it is physically impossible for one person to engage, or pay, another to undertake on his or her behalf. Such activities need to be carefully delineated from superficially similar activities such as washing or feeding which can be performed by others, and indeed are offerd on a market basis. Non-productive activities do not permit division of labour or the emergence of specialist producers or industries.

11. To avoid misunderstanding, two points need to be stressed. First, the term "productive" is used here in a technical economic sense without emotive overtones. It is not being suggested that non-productive activities are less important, or less valuable, in some wider sense, as many of them are literally vital. Second, it is not suggested that "non-productive" activities are without economic significance or are not themselves susceptible to economic analysis. However, they do not produce goods or services.

B.4 The productive boundary in the System

12. The boundary of production used within the System is drawn more narrowly than the boundary of economic production because all unpaid domestic or personal services produced for own consumption within households are excluded from measured production and hence from GDP. More precisely, the issue is not whether the activities in question are considered to be productive (which they clearly are in an economic sense), but that it is not considered advantageous, given all the various purposes served by the System, to try to impute values for those services and record them throughout all the accounts of the System as a whole.

13. On the other hand, the production of all goods for own consumption, or capital formation, within households is included within the production boundary of the System. While the production of household services for own consumption has traditionally been excluded from measured production from the earliest days of national accounting, it is worth explaining briefly why this is so.

14. First, it is advisable to clarify the kinds of services for which values are not imputed:

(1) the cleaning, decoration and maintenance of the dwelling occupied by the household, including small repairs of a kind usually carried out by tenants as well as owners;

(2) the cleaning, servicing and repair of household durable or other household goods, including vehicles used for household purposes;

(3) the preparation and serving of meals;

(4) the care, training and teaching of children;

(5) the care of sick, infirm or old people;

(6) the transportation of members of the household or their goods using household vehicles.

15. These are all clearly productive activities in an economic sense and some households do pay other persons, such as domestic servants, cooks, tutors, nurses or chauffeurs, to produce these services for them. Nevertheless, they are, by convention, excluded from production in the System.

16. In most countries a considerable amount of labour is devoted to the production of these unpaid domestic or personal services, while the consumption of these same services makes a major contribution to economic welfare. If therefore the sole, or even the prime, purpose of national accounts were to measure levels, or changes, in aggregate economic welfare, values ought to be imputed for these services and included in the accounts. However, the System does not exist simply for the purpose of measuring the level, or growth, of one or two selected aggregates.

17. The reasons for not imputing values for domestic or personal services produced within households may be summarised as follows:

(1) As services are delivered as they are produced, the own-account production of services is a completely self-contained activity with relatively little impact on the rest of the economy. The decision to produce and the decision to consume are one and the same decision, in a way that is not true for goods. For example, if a household engages in the production of agricultural goods, the production decision does not entail a simultaneous consumption decision. Once an agricultural crop has been harvested, the producer has a choice about how much to consume, how much to store for future consumption or production, and how much to offer for sale or barter on the market. Indeed, although it is customary to refer to the own-account production of goods, strictly it is not even possible to determine at the time the production takes place how much of it will eventually be consumed. As indicated earlier, one of the distinguishing features of goods is that their production and use, or marketing, are quite separate activities. For example, if the agricultural crop which a household receives turns out to be better than expected, it may seek to dispose of some of it on the market even though it may have been all originally intended for own consumption. This kind of possibility is non-existent for services.

(2) The vast majority of domestic and personal services are produced within households for own consumption, and not by paid producers, in countries at all stages of economic development. There are, therefore, no major markets whose prices can be realistically used to value household services, such prices as are

available tending to refer to specialized and typical services. It is, therefore, extremely difficult to estimate meaningful values for the services produced within households which can be used for purposes of economic analysis alongside the market values which make up most of the entries in the accounts.

(3) Imputed values have a different economic significance from the values associated with monetary transactions. The imputed incomes which would be associated with the imputed outputs would be committed to corresponding imputed expenditures on the same service: it is not sufficient to impute values for outputs alone as all the consequences have to be traced through the System. Moreover, it is clear that if the imputed values were to be converted into monetary receipts, the resulting expenditures would be quite different in most cases, especially in developing countries. For example, if a household member were offered the choice between working on services for own consumption and producing the same services for another household in return for paid remuneration equal to the imputed value of the own account production, the paid employment would almost certainly be preferred because of the much greater consumption possibilities it affords. Thus, imputing values for the own-account production of services would not only be technically very difficult, it would yield values which would not be equivalent to monetary values from a behavioral or analytical viewpoint. This kind of criticism can be directed at many of the other imputed values which are, in fact, included in the System, but the sheer size of the imputation which would be needed for household services places it in a category of its own.

18. Thus, the failure to impute a value for the output of household services is explained by a combination of factors, namely the relative isolation and independence of these activities from markets, the extreme difficulty of making economically meaningful estimates of their values, the sheer size of the imputation required, and the adverse effects it would have on the usefulness of the accounts for the analysis of markets and market disequilibria - the analysis of inflation, unemployment and so on. It would also have unacceptable consequences for labour force and employment statistics. Economically active persons are persons engaged in the kind of production which is included within the boundary of production of the System. If that boundary were to be extended to include the production of own-account household services, virtually the whole adult population would be economically active and the concepts of employment and unemployment would be undermined and rendered analytically useless.

B.4.1 The production boundary within households

19. Although it has already been decided that personal and domestic services produced for own consumption by households fall outside the boundary of production used in the System, it is nevertheless useful to give further guidance with respect to the treatment of particular kinds of household activities, especially as it is not always clear whether certain activities ought to be treated as the production of goods or the production of services.

B.4.1.1 Own-account housing services

20. The own account production of housing services by owners of dwellings remains within the production boundary of the System. The ratio of owner occupied dwellings to rented dwellings is liable to vary quite substantially between different countries, or even within a single country over a relatively short period of time, so that both international and intertemporal comparisons of the production

and consumption of housing services would be seriously distorted if no imputation were made for the own-account production of housing services. Moreover, there are usually large markets for rented dwellings which can be used to obtain satisfactory estimates of imputed rents.

B.4.1.2 Own-account production of goods

21. The System includes the production of all goods within the boundary of production, not least because of the time the production takes place it may not even be known whether, or in what proportions, the goods produced are destined for the market or for own use. Thus, the following types of production intended for own consumption within households are all included:

(1) the production of agricultural products and their subsequent storage; the gathering of berries or other uncultivated crops; forestry; wood cutting and the collection of firewood; hunting and fishing;

(2) the production of other primary products such as mining salt; cutting peat; the carrying of water; etc.

(3) the processing of agricultural products; threshing and milling; slaughtering of animals; curing hides and skins; the production and preservation of meat and fish products; the preservation of fruit by drying, bottling, etc., the production of dairy products such as butter or cheese; the production of beer, wine, or spirits; crushing oilseeds; weaving baskets or mats; etc.

(4) other kinds of processing such as weaving cloth; dress making and tailoring; the production of footwear; the production of pottery, utensils or durable; making furniture or furnishings; etc.

22. It is not feasible to draw up a complete, exhaustive list and the above list is intended to be only illustrative. The amounts of certain kinds of these goods produced within households may, however, make only a negligible contribution to the total supplies of those goods in some countries. In such cases, it is not worthwhile trying to estimate the amounts involved which may be ignored in practice.

B.4.1.3 "Do-it-yourself" decoration, maintenance and small repairs

23. "Do-it-yourself" repairs and maintenance to consumer durable and dwellings carried out by members of the household constitute the own-account production of services and are excluded from the production boundary of the System. The materials purchased are therefore treated as final consumption expenditures.

24. In the case of dwellings, "do-it-yourself" activities cover decoration, maintenance and small repairs, including repairs to fittings, of a type which are commonly carried out by tenants as well as by owners. On the other hand, more substantial maintenance and repairs to their own dwellings, such as replastering walls or repairing roofs, carried out by owner-occupiers are included within the production boundary because they constitute intermediate inputs into the production of housing services. However, the production of such repairs may be treated as a secondary activity of the owner-occupier in his capacity as a producer of housing services. The production accounts for the two activities should be consolidated so that, in practice, the purchases of materials for repairs become intermediate

expenditures incurred in the production of housing services. Major renovation or extensions to dwellings are treated as own-account gross fixed capital formation and recorded separately.

B.4.1.4 The use of processing consumption goods

25. In general, the use, or further processing, within households of goods purchased for the satisfaction of human needs or wants cannot be treated as production. This applies not only to materials or equipment purchased for use in leisure or recreational activities but also to foodstuffs purchased for the preparation of meals. The preparation of a meal which is to be immediately consumed by members of the households, or others, is essentially a service type activity and is treated as such in the System and in ISIC. It therefore falls outside the production boundary when it is carried out on own account. The use of a durable good, such as vehicle, by persons or households for their own benefit or satisfaction is intrinsically a consumption activity and should not be treated as if it were an extension, or continuation of production.

B.4.1.5 Some borderline cases

26. The storage of agricultural products by households is included within the production boundary because it is considered to be an integral part of the production of these goods. Storage is essentially an ancillary activity of a goods producing establishment. The carrying of water is considered to be a goods producing activity which, in principle, is no different from mining or the extraction of oil where the first stage of production is simply to transport the good from its natural state to a location where it is in greater demand.

B.4.2 Illegal production

27. Although there are obvious practical difficulties in obtaining data on illegal production, it is nevertheless important to clarify some points of principle. There are two kinds of illegal production:

(1) the production of goods or services whose sale, or distribution, is forbidden by law;

(2) production activities which are illegal in themselves, or which become illegal when carried out by unauthorized producers; e.g. unqualified medical practitioners.

28. Both kinds of production are included within the production boundary of the System provided they are genuine processes in which inputs are used to produce outputs of goods or services. It follows that there must be an effective market demand for such goods and services from ordinary units who may not be involved in any kind of illegal activities other than the illegal transactions themselves. As explained in Chapter I, transactions in which illegal goods or services are bought and sold need to be recorded not simply to obtain more comprehensive measures of production and consumption but also to prevent consequential errors appearing elsewhere throughout the accounts of the System if funds involved in illegal transactions services are presumed to be used for other purposes instead. Although the sale of a good or service may be illegal, the proceeds received by the producer may be disposed of quite legally, while conversely expenditures on illegal goods and services may be made out of funds obtained quite legally.

29. Activities which are illegal but productive in an economic sense include the manufacture and distribution of narcotics, illegal transportation in the form of smuggling (often a form of own-account illegal production) and also other services such as prostitution or abortion. If the resulting transactions are not included errors may be introduced into the accounts affecting all parts of the System including the financial accounts and also, of course, the external account.

30. Illegal production does not refer to the production of "bads" in the form of externalities, such as the discharge of pollutants. Externalities may be produced as by-products of production processes which are themselves quite legal. Externalities are equivalent to services, or disservices, delivered without the consent of the units affected for which positive or negative values are not imputed in the System. Furthermore, criminal actions such as theft, extortion or violence are obviously not processes of production and there are no outputs of goods or services resulting from such activities. However, significant involuntary redistributions of wealth resulting from theft, appropriations, debt defaults, etc. should, in principle, be recorded in the reconciliation accounts of the System.

B.4.3 Concealed production and the underground economy

31. Certain activities may be fully productive in an economic sense and also quite legal provided certain standards or regulations are complied with but deliberately concealed from public authorities for a variety of reasons: for example;

(a) to avoid the payment of income, value added or other taxes;

(b) to avoid the payment of social security contributions;

(c) to avoid having to meet certain legal standards such as minimum wages, maximum hours, safety or health standards, etc.

(d) to avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms.

All such activities fall within the production boundary of the System provided that they are genuine processes of production in which inputs are used to produce outputs of goods or services. Producers engaged on this type of production may be described as making up the "underground economy". The underground economy may cover the production of almost any type of good or service, and it may also account for a substantial proportion of the total production of certain industries - for example, construction or certain service industries where small enterprises are common.

32. There may be no clear borderline between the underground economy and illegal production. For example, production which does not comply with certain safety, health or other standards could be described illegal. Similarly, the evasion of taxes is itself usually a criminal offence. However, it is not necessary to determine the precise boundary between underground and illegal production for purposes of the System as both are included within the production boundary in any case. The reasons given above for trying to obtain estimates of illegal production apply with even greater force to production in the underground economy because the latter may be presumed to be much larger in most countries.

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33. It follows that transactions on unofficial or secondary markets which exist in parallel with official markets (e.g. for foreign exchange or goods subject to official price controls) must also be included in the accounts, whether or not such secondary markets are actually legal or illegal.

34. Because certain kinds of producers try to conceal their activities from public authorities for the kinds of reasons given above, it does not follow, of course, that they are omitted from national accounts in practice. Many countries have had some success in compiling estimates of production which cover the underground economy as well as the ordinary economy. In some industries, such as agriculture or construction, it may be possible by using various kinds of surveys and the commodity flow method to make satisfactory estimates of the total output of industry without being able to identify or measure that part of it which is "underground" (or indeed illegal). More of the underground economy may actually be included in published national than many users are aware.

B.5 The production boundary: a summary

35. As stated earlier, production in an economic sense is an activity which produces goods or services are capable of being delivered, or provided, to other economic units. The System, however, excludes the production of unpaid domestic and personal services for own consumption within households for which no values are imputed. The boundary of production within the System therefore includes the following types of production:

(1) the production of all goods, whether retained by the producer for his own use or not; such goods could have been offered on the market even if they are not so offered;

(2) the production of all services which are actually provided to third parties - that is, to other institutional units or to the community as a whole - or which are produced by paid employees; these include non-market services produced by government units or non-profit institutions which are provided free or at reduced prices.

C. The measurement of production

36. Production is a process in which land, labour and capital goods are employed to produce outputs of goods and services by transforming, or consuming, inputs of goods and services. In the System, the inputs are recorded and valued at the time at which they enter the process, while completed outputs are recorded and valued when they emerge from the process. The inputs and outputs may be valued at the market prices prevailing at the time or at the corresponding basic prices - that is, prices excluding any taxes or subsidies on the products. The increase in value between the inputs and the outputs measures the gross value added by the process: this is the amount out of which the consumption of fixed capital, taxes on production and compensation of employees must be paid, the balance remaining being defined as the net operating surplus. The definition, measurement and valuation of inputs and outputs is therefore fundamental to the System.

37. In practice, the measurement of production is much more complicated than this simple description suggests, especially when the process of production extends over a long period of time so that inputs and outputs are not all recorded at the same

time. The production of very large capital goods such as ships, buildings or other structures may extend over several accounting periods, in which case it would be inappropriate to assign the whole of the output to the period in which the process of production happens to terminate. Such output has to be allocated over all the periods during which production takes place by calculating the "work-in-progress" completed each period. A further problem is that some goods, both inputs and outputs, may be held in the producer's stocks for varying lengths of time before being used in production or sold on the market or other wise disposed of. The accounting records which enterprises keep of their purchases and sales have therefore to be adjusted for changes in stocks in order to arrive at the values of the inputs consumed or outputs produced. These problems are considered in some detail in later sections of this chapter.

38. Valuation may also present problems. Most inputs and outputs at the market or basic prices prevailing at the time the inputs and outputs are recorded, but this method of valuation is not always feasible because the requisite markets and market prices do not exist, some goods or services being provided free, or at artifically low prices, by governments or non-profit institutions. As the supply and demand for such goods and services is not regulated on the market by the price mechanism, their production is described as "non-market". The treatment and valuation of non-market goods or services is considered in a later section.

D. The measurement of market output

39. In physical terms, the output from a process of production consists of goods and services as defined in the first section of this chapter. The time at which output is to be recorded is when the good is finished or the provision of the service is completed provided that the process of production does not extend over a long period of time. When the production process covers two or more periods the output has to be measured by the amount of work-in-progress completed within each period, as recorded at the end of each period.

40. Even finished goods are not all sold at the same time as they are produced so that the market value of the output of goods produced in any given period in time does not generally coincide with the value of sales. The accounting relationship between output and sales is given by the identity:

output = sales + the value of the change in stocks produced.

D.1 The value of changes in stocks of outputs

41. The measurement of the value of changes in stocks is sensitive to changes in prices and it is very important to ensure that changes in stocks are measured correctly when there is inflation. For simplicity, it will be assumed throughout this section that output is to be valued at market prices rather than basic prices, as the principles are the same whichever set of prices is used. The issue is therefore to ensure that changes in stocks are valued in such a way that they satisfy the above identity. This entails valuing goods entering and leave stocks at the market prices prevailing at the times the entries and withdrawals occur.

42. When goods are produced, the objective is to record their value at current market prices, irrespective of whether the goods are actually sold at that moment or enter into stocks to be sold later. It follows that entries into stocks must be valued at current market prices. When the goods are subsequently withdrawn from stocks to be sold, no output is to be recorded at that point. By valuing withdrawals at the same prices as those at which they are being sold, output must be zero, the relevant output having been recorded earlier when the goods were produced.

43. The value of the change in stocks of goods produced as outputs over the accounting period as a whole is obtained by cumulating the value of all the goods entering stocks valued at the prices prevailing at the times the entries take place and subtracting from this total the cumulative value of all the goods withdrawn valued at the prices prevailing when the withdrawals take place. However, the resulting measure of stock change is neither easy to understand nor calculate and may behave in ways which seem counter-initiative. For example, if the level of the stock of some good is exactly the same at the end of the period as at the beginning of the period, the value of the change in stocks may be positive, negative or zero when prices are rising depending upon the way in which stocks move between the beginning and the end of the period. A complete explanation of the properties and behavior of the System's measure of stock change is given in a separate chapter and only a brief summary of the main conclusions are given here.

44. It follows from its definition that the value of the change in stocks that it can only be calculated exactly if records are kept of all stock movements and the prices prevailing at the time they occur. As such data are not always available, alternative measures may have to be used as proxies and one which is widely used in practice is the volume measure obtained by valuing the stock movements for a particular good at a single price, namely the average price of that good over the accounting period. The volume measure is simply equal to the difference between the quantity of stocks held at the beginning and the end of the period multiplied by the average price.

45. It is shown in Chapter ... that the volume measure coincides with the measures required by the System if

(a) there are no changes in the price of the good; or

(b) if the stock of the good grows, or declines, at a constant linear rate over the period.

Either condition is sufficient. Thus, the System's measure and the volume measure do not necessarily diverge as a result of inflation: they diverge only when there is inflation (or falling prices) combined with fluctuations in stocks. This happens in industries in which either the pattern of production or the pattern of sales is strongly influenced by seasonal factors, especially agriculture. Various numerical examples of the effects of fluctuations in stocks are given in chapter ‹›.

46. One important property of the System's measure of the value of changes in stocks when correctly measured is that any nominal holding gains which may accrue, or be realized, on goods held in stock do not enter into the value of output and hence gross value added and GDP. A nominal holding gain, or loss, on a good

between two points of time is equal to the increase, or decrease, in the market price of that good between the two time points. Holding gains do not include changes in value due to some improvement, or deterioration, in the quality of a good due to the passage of time - for example, the maturing of wine. A holding gain is a form of profit which is the antithesis of the operating surplus. It accrues simply as a consequence of holding a good without subjecting it to any kind of transformation.

47. The way in which the System's measurement of the value of changes in stocks eliminates holding gains may be illustrated by the following simple example. Suppose a good enters stock when it is produced: the System requires the output of that good to be valued at the market price Pi prevailing at that time. Later in the same accounting period the good is withdrawn from stock and sold at a different Pj, which may be greater or less than Pi. The value of the stock change over the period as a whole is not zero (Pi-Pj) - the entry price minus the withdrawal price. The value of the output is equal to the sale plus the value of the stock change: this is, Pj+(Pi-Pj) = Pi, as required. In effect, the holding gain (Pj-Pi) is subtracted from the sale price to arrive at the production price.

48. This simple example illustrates fundamental point that the value of the output is always measured at the price prevailing when the good is produced, no matter how long it is held in stock and how much its price changes while it is held in stock. Output has to be valued at the time it is produced rather than sold, in order to be valued consistently with the inputs used in its production. Otherwise, it is not possible to derive economically meaningful measures of gross value added and GDP.

49. In general, it can be shown that the value of changes in stocks is composed of two elements:

(1) changes in the quantities of stocks between the beginning and end of the period valued at the average prices of the period (the volume component);

(2) a revaluation adjustment, the need for which arises only when prices are changing and the pattern of sales over time diverges considerably from that of production (which implies fluctuations in stocks): in these circumstances the average sales price diverges from the average production price and the quantities sold must be revalued at the average production price. When there is rapid inflation, the revaluation adjustment can be quite significant.

D.1.1 Changes in stocks in business accounts

50. The value of output in business accounts is also usually derived by adding the value of changes in stocks to the value of the sales. However, there is a fundamental difference between most business accounts and economic accounts in the way in which goods held in stock are valued, the normal practice in business accounting being to value goods held in (and withdrawn from) stock at the price at which they were recorded as entering (i.e. "at historic cost") if this price is lower than the current price. The intention is to value stocks conservatively, or prudently, for balance sheet purposes, but it may lead to measures of profit which are by no means prudent, or conservative, in inflationary conditions. Under historic cost accounting, if a good enters stocks at a price Pi to be subsequently withdrawn and sold at price Pj (output, valued as sales plus change in stocks) is equal to Pj+(Pi-Pi) = Pj, the sales price. The value of output thus includes the

value of any holding gain (Pj-Pi) which accrues between the time of production and time of sale. This holding gain is not separated from the operating surplus on production under historic cost accounting. Moreover, it boosts the measurement of profit than on the measurement of output. In some circumstances it may be useful composite measure of profit which includes holding gains as well as the operating surplus provided that the composite profit measure is not presented, or interpreted, as if it referred to the operating surplus only i.e. the profit arising out of production. Unfortunately, the distinction between these two quite different components of historic cost profits is frequently neither made nor appreciated, and the distinction may even be deliberately ignored in order to make the production activities of an enterprise appear much more profitable than they really. In periods of high inflation, profit as recorded in business accounts is likely to exceed the operating surplus recorded in economic accounts by a considerable margin. This is, in fact, the principal difference between the two types of accounting.

51. It is not necessary to go into details of business accounting practices in the present context, but it is useful to add some further points for clarification. As goods withdrawn from stock are valued at historic costs in business accounts, it is necessary to know the order in which goods are withdrawn, or are assumed to be withdrawn from stock. The most common assumption is FIFO, or first-in-first-out, which imples goods are withdrawn in the same order as they entered. For example, if goods are held in stock for three months on average the combination of FIFO with historic cost accounting during inflation implies that the price of each unit sold will include a three months holding gain which will then be combined with the operating surplus. As business accountants recognize that this may be undesirable of this result for many purposes, an alternative assumption which has found increasing favour in LIFO, or last-in-first-out, which imples that the good withdrawn from stock is the last one which entered. This implies that withdrawals are valued at current prices in practice, as in the SNA, provided that the level of stocks is not depleted. The provision is important because, under LIFO, the goods which remain in stock are those which are assumed to have been there for the longest periods of time. If stocks are run down, therefore, goods start to be withdrawn which are assumed to have been there for a very long time and which may therefore be valued at very low prices indeed when historic costs are used. Thus, even under LIFO substantial holding gains may be included in profits if stocks are greatly diminished. Finally, in situations of very high inflation, the use of NIFO has been proposed, namely, next-in-first-out. This implies valuing goods withdrawn from stock at the prices expected to prevail at some point in the future.

52. Other, and more sophisticated, ways of valuing changes in stocks, may be found in business accounts, especially in accounts drawn up for internal management as distinct from financial reporting. It should be emphasized that the methods use for purposes of management accounting are often very similar to, and possibly identical with, those used in the SNA. Because so may different methods are liable to be used in business accounts, it is impossible to suggest algorithms, or even simple rules of thumb, which would be generally applicable for purposes of transforming data on stock changes in business accounts to the data required by the System. Each case has to be treated individually taking account of the precise way in which the business accounts have been drawn up.

D.1.2 Work-in-progress

53. Work-in-progress consists of stocks of goods produced by an establishment or enterprise but which requires further processing and are not yet in a form in which they can be suitably delivered or sold to a purchaser. Work-in-progress is a form of output which is recorded under the general heading of "changes in stocks". There may be substantial work-in-progress in industries in which the production process takes a long time to complete, such as agriculture or the production of large capital goods, including buildings and other structures.

54. When the production takes more than one accounting period to complete, the whole of the output during the period may have to be recorded as work-in-progress. Goods cannot be included in gross fixed capital formation until a change of ownership occurs, which is usually not until they are completed and handed over to the purchaser. In the case of buildings or structures for which a contract of sale has been concluded in advance, however, the change of ownership is assumed to occur in stages as value is put in place.

55. Almost by definition, it is not possible to find suitable market prices to value work-in-progress because products are not yet in a marketable form. Work-in-progress is, therefore, measured by the value of the costs actually incurred in its production: that is, as the sum of the following four items:

(i) the value at market prices of the goods and services consumed as intermediate inputs;

(ii) the value of the compensation of employees paid;

(iii) the value of the consumption of fixed capital incurred;

(iv) the value of any taxes on products or on production incurred.

56. The measurements of additions to, and subtractions from, work-in-progress must be based on the same principles as changes in the stocks of finished products: that is, by valuing them at the cost levels prevaling at the times they occur. When there is inflation, cost levels may increase significantly during the course of the accounting period, so that work-in-progress cannot be valued uniformly within the same accounting period. When the project is eventually completed and the sale takes place, the reduction in work-in-progress which is recorded must be valued at the prices and costs prevailing at that moment. During inflation, this necessitates revaluing upwards the work-in-progress recorded earlier in the period when costs were lower. Otherwise, the nominal holding gains which accrue on the work-in-progress while it is awaiting completion would be incorrectly included in the value of the output when it is sold. This point is developed further in Chapter [ ].

57. When there is high inflation, this procedure should be followed, in principle, for goods whose production takes a long time even if they are produced and sold within a single accounting period. Such goods should be treated in the same way as goods which are produced early in the accounting period, held in stock, and then sold at higher prices at the end of the period. Failure to revalue previous work-in-progress may result in a mis-matching of input and output prices leading to incorrect measures of output, value added and the operating surplus.

58. The procedure to be followed may be illustrated by the example of a house which may take up to a year, or longer, to build. When there is inflation the accounting year should be divided into sub-periods, such as quarters or even months. The value of the work-in-progress carried out each quarter should then be measured separately using the estimated cost levels prevailing within each quarter. In each quarter prior to that in which the house is completed, output is equal to the work-in-progress recorded. In the quarter in which the house is completed and sold, output is equal to the value of the sale less the reduction in work-in-progress which takes place when the house is finished and ceases to be work-in-progress. This reduction must be valued at the cost levels prevailing at the time. This entails revaluing all the work-in-progress already recorded for previous quarters at the cost levels prevailing when the house is sold. The value of the output produced is thus composed of three elements:

(a) the value of the house at the time it is sold;

plus (b) additions to stocks, i.e., the sum of the work-in-progress accumulated over the previous quarters valued at their own cost levels;

minus (c) withdrawals from stocks: i.e., total work in progress recorded for each of the quarters revalued at the cost levels prevailing at the time the house is completed and sold.

59. When there is inflation (c) may be much larger than (b). Thus, the value of output may be less than that of sales, even though the entire production process may be completed within the year, or within a single accounting period, because the sales value includes holding gains realized on the work-in-progress while the construction was being carried out. These holding gains must be excluded from output, gross value added and the operating surplus.

60. The procedure outlined above can be applied to any kind of production which takes a long time to complete. Thus, explicit estimates of work-in-progress may be needed for agricultural production, for example, under inflationary conditions even though it may be much more difficult to value work-in-progress in agriculture.

61. When production is carried over from one accounting period to the next, the work-in-progress completed during the first period has to be recorded in the end of period balance sheet revalued at the prices, costs and wage rates prevailing at the end of the period. The exact procedure to be followed is illustrated with numerical examples in chapter [ ] to which reference may be made for further details. Finally, it may be noted that holding gains on work-in-progress, like all other holding gains, should be shown in the revaluation accounts of the System.

D.2 The coverage of output

D.2.1 Deliveries between establishments belonging to the same enterprise

62. An establishment is a production unit in which only a single productive activity is carried out or in which the principal productive activity accounts for most of its gross value added. It is described in some detail in chapter [ ]. It may coincide with an enterprise, or be part of an enterprise. It is necessary, therefore, to fix the exact coverage of the goods and services which make up the output of an establishment of an enterprise, bearing in mind that some establishments may be producing goods or services for the use of other establishments belonging to the same enterprise. The System defines the output of

the enterprise as the sum of the outputs of the individual establishments of which it is composed.

63. Goods and services which are produced and then consumed as intermediate inputs within the same establishment are not counted as part of the output of that establishment. In principle, they should be largely confined to the services produced by ancillary activities. On the other hand, goods and services produced by an unincorporated enterprise which are used for final consumption by its owner, or the household to which he belongs are, of course, to be counted as part of the output of the establishment as they are consumed outside of that establishment.

64. Goods and services which one establishment provides to a different establishment belonging to the same enterprise should always be counted as part of the output of the producing establishment. Such goods and services may be used for intermediate consumption by receiving establishment, but they may also form part of its gross capital formation. The goods and services should be valued by the producing establishment at current basic or producers' prices; the receiving establishment should value them including any additional transportation costs which may have been incurred. The use of artificial transfer prices employed for internal accounting purposes within the enterprise should be avoided, if possible.

65. The System requires production accounts to be compiled for both groups of enterprises and groups of establishments, i.e., for both sectors and industries. In order to ensure that the total output and total intermediate inputs of an enterprise are the same as the corresponding totals for the establishments which make up that enterprise, the enterprise totals must include any inter-establishments deliveries of goods and services of the kind just referred to.

D.3 Miscellaneous types of output

66. There are several miscellaneous kinds of output in addition to sales which need to be taken into consideration in the case of market producers.

D.3.1 Output provided as compensation in kind

67. The first consists of goods or services produced by an enterprise which are provided to its own employees as remuneration in kind. There are many examples ranging from free coal for coal miners to free travel for airline staff or railway employees. These goods and services must be included in output and valued at basic prices.

D.3.2 Output used for barter

68. The second type of output consists of goods or services which are provided to other establishments or enterprises in exchange for their products: in other words, goods or services which are bartered rather than sold. In developed countries, the incidence or barter is likely to be small but it may occur for reasons of tax avoidance, or evasion, especially between the owners of small unincorporated enterprises. Goods or services bartered should be valued at basic prices.

D.3.3 Output used for own-account formation

69. The third type of output consists of goods used for own-account gross capital formation. Producers of machinery and equipment, such as vehicles, may retain some of the capital equipment which they produce for their own future use; such output should be valued at basic prices. Most own-account capital formation, however, is likely to be in the form of buildings or other structures. Except for construction enterprises themselves, the activity of construction is so distinctive that it will generally be necessary to create a separate establishment for the construction unit. The output of the establishment should be valued at basic prices or, if necessary, by the costs of construction.

D.3.4 Output used for household consumption

70. The fourth type of output consists of goods and services which are used for purposes of final consumption by the owner(s) of unincorporated enterprises. In the case of subsistence agriculture, the whole output may be used for final consumption by members of the owner's household. Output used for final consumption should be valued at basic prices.

D.4 The components of output: a summary

71. A summary of the various different components of the output of ordinary market producers is given in the following table. Certain special kinds of output, such as distribution or banking are dealt with in later sections.

72. Although the table refers to ordinary market producers, only one of the seven components of output distinguished in the table represents actual sales through monetary transactions. Even the value of change in stocks constitutes an imputation. Items 4 to 8 in the table cover situations in which some of the goods or services produced are diverted from the market for other purposes. In general, however, the total value of these items is likely to be small in comparison with sales, at least in the case of most market producers.

Components of output

Ordinary market producers

1. Actual sales of own products by establishment or enterprise.

2. Value of the change in stocks of goods produced by the establishment or enterprise.

---

1 + 2 = 3 Output actually sold, or likely to be sold on the market.

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4. Deliveries of own products to the establishments belonging to the same enterprise.

5. Deliveries of own products to employees as remuneration of kind.

6. Deliveries of own products to other establishments or enterprises in exchange for their products (barter).

7. Allocation of capital goods by the establishment or enterprise for own gross fixed capital formation.

8. Allocation of own products for final consumption by the owner(s) of unincorporated enterprises.

---

4 + 5 + 6 + 7 + 8 = 9 Output not sold on the market.

---

3 + 9 = 10 Total output

D.5 The output of producers of large capital goods or structures

73. The class of producer considered in this section is one whose output consists of large capital goods - for example, ships, aircraft, heavy machinery, buildings and other structures. The time needed to produce such goods may range from several months to several years. They are often unique goods which are built according to the specifications of the purchaser so that there may be no identical, or even similar, goods on the market whose prices can be observed. Producers of capital goods are usually market producers, but certain types of construction may be undertaken by non-market producers such as non-profit institutions.

74. The System records output at the time the goods and services are produced, which may be interpreted as the time they are completed in the case of goods or services which take only a short time to produce. For practical purposes, a short period of production may be understood as less than a month. Most goods and services, except for large capital goods and agricultural products, have short production periods. When the period of production extends over several months two problems have to be addressed:

(i) the allocation of output between different accounting periods when the period of production spans two or more accounting periods;

(ii) the valuation of such output, especially when prices and wage rates are changing while the good is in the process of production.

75. Both problems are dealt with simultaneously by valuing the output from long production processes by the work-in-progress as measured by the total production costs actually incurred during the period in question: that is, by the sum of the following four items:

(i) the value of the goods and services used for intermediate consumption;

(ii) the value of compensation of employees paid;

(iii) the value of consumption of fixed capital;

(iv) the value of any taxes on products or on production incurred.

76. If the process of production is not completed within the accounting period, the value of the output is equal to the total of the work-in-progress carried out during that period. However, when the production is completed, the good must either be sold or enter the producer's stock of finished products valued at its current basic price. Thus, the value of the output in the period in which the good is sold or enters stock is given by the sum of the following four items:

(a) the price of the product sold or entered into stock;

plus (b) the value of the work-in-progress completed on that product within the same accounting period prior to the time at which the sale takes place;

minus (c) the value of all the previous work-in-progress on that product carried out not only within the same accounting period but also in all preceding accounting periods revalued at the prices, costs and wage rates prevailing at the time the production is completed.

77. This method of valuing output has already been explained earlier in the section on work-in-progress and only a few additional points need to be noted here. If the entire process of production is completed within a single accounting period, it is not necessary to calculate work-in-progress unless prices, costs and wage rates change significantly between the start and the end of the process. If prices, costs and wage rates remain fairly stable, the additions to, and subtractions from, work-in-progress should more or less cancel each other out. However, if the production process extends into the following accounting period, it is always necessary to calculate work-in-progress in order to be able to apportion output between the two periods.

78. By valuing work-in-progress on the basis of production costs without a mark-up for profits, the operating surplus (or possibly loss) is treated as accruing entirely in the period in which the sale takes place. When there is real uncertainty about the eventual selling price, this treatment is conceptually appropriate. However, if there is information which would enable a reasonable estimate to be made of eventual mark-up for profit, such a mark-up could be added to the direct costs of production in order to obtain improved estimates of the value of the work-in-progress.

79. When a contract of sale has been agreed and signed in advance for the construction of a building or other structure, the output from the construction project may be treated as being sold in stages. The work-in-progress completed each accounting period is therefore treated as being sold to the purchaser at the end of each period. In this case, the output deemed to be sold at the end of each accounting period must count as gross fixed capital formation on the part of the purchaser.

D.6 The output of wholesalers and retailers

80. The output of wholesalers and retailers is defined differently from that of other producers of goods and services. The function of a wholesaler or retailer is to resell goods with a minimal amount of processing. Although a distributor actually sells goods, his productive activity is construed to be the provision of services by obtaining and storing goods in a location which is convenient for his customers, displaying the goods in an informative and attractive way, and then packaging them according to the requirements of the individual customer. The goods themselves are not regarded as being significantly transformed in the process and are therefore not treated as intermediate inputs into the distributor's own process of production. In consequence, the goods sold do not form part of the output of the distributor whose services are measured by the trade margins realized. The trade margin is defined as the difference between the price at which the distributor sells a good and the price originally paid for it, less the value of any nominal holding gain which may have accrued while the good was held in the distributor's stocks. Alternatively, the margin may be defined as the selling price less the price that would have to be paid by the distributor to replace the good at the time it is sold. As storage of goods is one of the principal functions of distributors, it is particularly important not to include the holding gains on the stocks of their goods in the value of their output.

81. The output of a wholesaler or retailer is recorded whenever a sale takes place. The value of the output produced by a distributor depends only on the numbers of goods sold and the sizes of the margins.

82. Although wholesalers and retailers frequently provide some of the goods intended for sale as remuneration in kind to their employees, or retain goods for their own personal consumption, the imputed values of these goods are not to be included in the distributor's output as they have not produced the goods themselves. Goods originally intended for resale which are subsequently consumed by the owner of a retail or wholesale business have to be treated as if they were purchased directly for final consumption by the owner. They should not be routed through the accounts of the business. The margins on goods which have to be sold off at lower prices than they were bought to avoid waste are negative. A good which goes to waste may be treated as being sold at a zero price.

D.7 The output of operating leasing

83. The activity of renting out machinery or equipment for specified periods of time which are shorter than the total expected service lives of the machinery or equipment is termed operating leasing. This type of activity is classified under Division 71 of ISIC. It is a form of production in which the owner, or lessor, provides a service to the user, or lessee, the output of which is valued by the rental which the lessee pays to the lessor. Operating leasing has to be clearly distinguished from financial leasing which is not a process of production but a

method of financing the acquisition of capital goods. Financial leasing is therefore treated separately in Chapter ... below. The present section is intended to describe the nature and measurement of the output of operating leasing.

84. The characteristic features of operating leasing may be summarized as follows:

(1) The lessor, or owner of the machinery or equipment, maintains a stock of equipment in good working order which can be hired on demand, or a short notice, by users: in this respect, the role of the lessor bears some resemblance to that of a wholesaler or retailer.

(2) The equipment may be rented out for varying periods of time. The lessee may renew the rental when the period expires and the user may hire the same piece of equipment on several occasions. However, the user does not undertake to rent the equipment over the whole of the expected service life of the equipment.

(3) The lessor, or owner, is frequently responsible for the maintenance and repair of the equipment as part of the service which he provides to the user, or lessee. The lessor must normally be a specialist in the operation of the equipment which may be an important factor in the case of highly complicated equipment, such as computers, where the lessee and his employees, may not have the necessary expertise or facilities to service the equipment properly themselves. The lessor may also undertake to replace the equipment altogether in the event of a serious or prolonged breakdown.

85. Thus, the service provided by the lessor goes beyond the mere provision of a piece of equipment. It includes other elements such as convenience and security which can be important from the user's point of view. Operating leasing developed originally to meet the needs of users who require certain types of equipment only intermittently. However, with the evolution of increasingly complicated types of machinery, especially in the electronics field, the servicing and back-up facilities provided by a lessor are important factors which may influence a user to hire rather than purchase. Other factors which may persuade users to rent over long periods rather than purchase are the consequences which hiring may have on the enterprise's balance sheet, cash flow or tax liability.

D.8 The output of financial intermediaries

86. This section is concerned with all financial intermediaries except insurance corporations and pension funds which are dealt with in the following sections.

87. Financial intermediaries incur liabilities on their own account on financial markets by borrowing funds which they lend on different terms and conditions to other institutional units. As explained in Chapter ... they intermediate between lenders and borrowers by channelling funds from one to the other. They include almost all institutions which describe themselves as "banks". They may include some unincorporated enterprises engaged in financial intermediation on a relatively small scale: these may be important in some developing countries.

88. Financial intermediaries raise most of their funds by taking deposits although they also issue bills, bonds or other securities. They lend funds by making loans or advances, or by purchasing bills, bonds or other financial assets. The pattern of their assets is different from that of their liabilities and in this way they transform the funds they receive in ways which are more suited to the requirements

of borrowers. The rates of return they receive on the funds they lend are generally higher than the rates they pay on the funds they borrow, the difference between the accounting for most of their income and profits. They do not normally charge explicitly for the intermediation services which they provide to their customers and they have few, if any, receipts from sales which can be used to value the output of such services.

89. Deposit taking financial intermediaries may also provide various kinds of auxiliary financial services, or business services, as secondary activities, for example, currency exchange, or advice about investments, the purchase of real estate, or taxation. The output of such services can be valued on the basis of the fees or commissions charged, in the same way as other services. The question to be resolved is how to value the output of financial intermediation for which there are no sales receipts.

90. The position adopted in the System is that the practice of charging different rates of interest to borrowers and lenders, and also paying, or charging, different rates of interest to different categories of depositors, or borrowers, is essentially an alternative to utilizing a uniform rate of interest for all deposits and loans and then charging depositors and borrowers explicitly on the basis of the services provided to them. Suppose, for purposes of argument, that financial intermediaries were to utilize a uniform rate of interest. They would then be obliged to charge depositors according to the frequency with which the deposits were withdrawn or transferred, and so on. Conversely, they would be obliged to charge borrowers according to their assessment of their credit worthiness, the terms on which they can recover their funds, and so on. For convenience, however, financial intermediaries choose to deduct the implicit charges from the interest payments they would otherwise pay their depositors, while the implicit charges to borrowers are added to the interest payments they would otherwise charge. This avoids the need to charge their customers individually for services provided and leads to the pattern of interest rates which is observed in practice.

91. On this interpretation, the value of the output of financial intermediaries can be approximated satisfactorily by choosing an appropriate reference rate of interest which can be used to estimate the implicit service charges, at least for large groups of depositors and borrowers. When a properly organized money market exists in a country, the inter-bank lending rate can be used for this purpose. Otherwise, the central bank lending rate may be used. The value of the output of services provided to depositors can then be approximated by the interest payments that would be paid using the reference rate less the actual interest payments paid (if any). The output of services provided to borrowers can be approximated by the interest actually charged to borrowers, or received on bills, bonds or other securities, less the interest payments that would be paid using the reference rate. If the values of the funds borrowed and lent by financial intermediaries are about the same, it follows that the value of the output of depost taking financial intermediaries can be estimated by the difference between their total interest received and their total interest payments.

92. The value of the total output of deposit taking financial intermediaries is therefore estimated by their total property income received minus their total interest payments. When making this caluclation the value of any property income which financial intermediaries receive from the investment of their own funds is excluded on the grounds that such income does not arise from financial intermediation. As explained above, the value of the output of deposit taking

financial intermediaries which is provided to particular groups of institutional units is estimated by:

(i) the difference between the interest actually charged on loans, etc. and the amount that would be paid if the reference rate were used; and

(ii) the difference between the interest depositors would receive if they were paid the reference rate and the interest actually received on deposits.

These amounts can be calculated from information about the total values of deposits and loans, and also the actual interest payments received and paid, for the group of units in question.

93. In the literature on national accounting it is common to refer to "the imputed output of banks". However, it is clear that financial intermediaries provide important services in much the same way as other major service producers and the existence of the services themselves is not in question. The problem is purely one of valuation when financial intermediaries do not bill, or invoice, their customers directly for the services provided but charge them indirectly by utilizing differential interest rates.

94. For the accounts as a whole, the method used to estimate the values of the services provided by deposit taking financial intermediaries is equivalent to reclassifying certain interest payments as payments for services. This reclassification has important consequences for the values of certain aggregate flows of goods and services - output, intermediate and final consumption, imports and exports - which affect the values added of particular industries and sectors, and also total GDP. However, there are also corresponding changes in the values of the flows of interest recorded in the use of income accounts. Because the two sets of changes are compensating, the disposable incomes and saving of all the units concerned, including the financial intermediaries themselves, are not affected. Nor are the financial accounts affected.

D.9 The output of insurance enterprises

95. The activity of insurance is a form of financial intermediation in which funds are collected from policy holders to be invested in financial or other assets which are held as technical reserves against the eventualities specified in the insurance policies. The funds collected from policy holders are ultimately channelled back to policy holders, although significant amounts of property income may be earned from the investment of the funds, and also capital gains or losses accrue, between the times the funds are received as premiums and the times they are paid out in claims or on maturity of the policies.

96. Only relatively small amounts out of the premiums paid on insurance policies are retained by insurance enterprises as payments for the service of arranging the financial protection or security which insurance is intended to provide. As there is no explicit charge made by insurance enterprises for arranging the insurance, the amounts of the implicit service charges have to be estimated residually from the total resources and payables of insurance enterprises. As just noted, insurance enterprises receive considerable amounts of property income from the investment of their reserves which have to be taken into account as well as the amounts they receive in premiums.

97. Insurance enterprises build up technical reserves for two reasons. The first is that insurance premiums are paid at the start of the period covered so that insurance enterprises typically hold funds for a period of time before the eventuality which gives rise to the payment occurs. This applies to casualty insurance as well as to life or endowment insurance. The second reason is that there is sometimes an important time lag between the eventuality occurring and the payment of the subsequent claim taking place. Thus, at any given moment of time, insurance enterprises hold considerable technical reserves in the form of actuarial reserves including reserves on "with-profits" life or endowment policies, prepayments of premiums in respect of future eventualities and reserves against unsettled claims. These technical reserves are invested in financial or non-financial assets, including property and real estate. The net income generated by these investments, i.e., the property income received less any interest or other expenses incurred, may exert a considerable influence on the level of premiums charged. While the management of its investment portfolio is strictly only a secondary activity for an insurance enterprise, it is nevertheless an integral part of the business of insurance which has a considerable bearing on the profitability or competitiveness of the enterprise.

98. The value of the output of insurance services is obtained residually from an accounting relationship in which the following five elements are involved:

(1) gross premiums earned: these refer to those parts of the premiums payable in the current or previous periods which cover the risks incurred during the accounting period in question. They are not equal to the premiums actually paid during the period, as the period covered by an individual premium is not generally the same as the accounting period. The prepayments of premiums, which refer to those parts of the premiums which cover risks in the subsequent accounting period or periods, are included under technical reserves;

(2) net income from the investment of the insurance technical reserves, as described above;

(3) claims which become due for payment during the accounting period: claims become due when the eventuality takes place which gives rise to a valid claim;

(4) changes in the actuarial reserves and reserves for with-profits insurance. These changes consist of allocations to the actuarial reserves and reserves for with-profits insurance policies to build up the capital sums guaranteed under these policies. Most of these reserves relate to life and endowment insurance but they may be needed in the case of casualty insurance when claims are paid out as annuities instead of lump sums;

(5) capital gains or losses on investments which are allocated to policy holders or claimants. They may be a component of claims due or added to the actuarial reserves or reserves for with-profits insurance policies.

99. Items (1), (2) and (5), namely:

gross premiums earned;

net income from investment;

capital gains or losses on investments;

determine the total resources of an insurance enterprise arising from its insurance activities. (In this context, any income or capital gains or losses arising from the investment of the enterprise's own capital, as distinct from its technical reserves, are excluded.) Items (3) and (4), namely:

claims due;

changes in actuarial reserves and reserves for with-profits insurance;

represent the total charges to be met out of these resources. The difference between the total resources and total charges represents the amount available to an insurance enterprise to cover its costs and provide for an operating surplus. It is therefore taken as the System's measure of the value of the output of services produced by the enterprise. It may be presumed that insurance enterprises take all the items (2) to (5) into consideration when fixing the levels of the gross premiums they charge in order to ensure that the excess of total resources over total charges provides sufficient remuneration for their own services.

100. Thus, the basic accounting identity on the basis of which the value of the output of insurance is imputed is as follows:

Gross premiums earned		Claims due
+		+
Net income from investments		Changes in actuarial reserves and reserves for with-profits insurance policies
+	=	+
Capital gains or losses on investments		Value of the output of insurance services

101. The value of the output of insurance services is the balancing item which ensures the accounting identity holds. This identity holds in principle for both casualty and life or endowment insurance. In practice, however, the item "capital gains or losses" may be deleted for casualty insurance as its impact may be negligible, while in those cases in which there are no actuarial reserves for casualty insurance, the item "changes in actuarial reserves" may also be deleted.

D.10 The output of pension funds

102. Pension funds are separate funds established for purposes of providing incomes on retirement for specific groups of employees which are organized and directed by private or public employers or jointly by the employers and their employees. These funds engage in financial transactions on their own account on financial markets and make investments by acquiring financial and non-financial assets. They do not include compulsory social security schemes organized for large sections of the community which are imposed, controlled or financed by general government. The only output produced by pension funds is that produced by their managers and other staff in the course of administering the funds, and the value of this output is measured by the total administration costs incurred in the process of managing the funds, including intermediate costs and consumption of fixed capital as well as the compensation of employees paid to the staff.

D.11 The output of research and development

D.11.1 Research and development by enterprises

103. Research and development by an enterprise is an activity undertaken for the purpose of discovering or developing new products, including improved versions or qualities of existing products, or discovering or developing new or more efficient processes of production. The research and development undertaken by enterprises on their own behalf is a form of account production which is analogous to own account gross fixed capital formation. Such output should be valued in the same way as own-account construction, that is, on the basis of the total production costs incurred. Research and development of this kind is a secondary activity and not an ancillary activity, and a separate establishment should be distinguished for it, when possible, in the production accounts by industry. Research and development does not include market research, which is treated as an ancillary sales activity when carried out within the same enterprise.

104. Research and development undertaken by separate, specialized research laboratories or institutes for sale on the market is valued by receipts from sales, contracts, commissions, fees, etc., in the usual way.

D.11.2 Research and development by government or non-profit institutions

105. Research and development undertaken by government units, universities, non-profit research institutes, etc., constitutes the production of a collective service. The output produced has virtually all the characteristics of a "public good" as that term is generally understood in economics. The output is treated as non-market and is valued on the basis of the total production costs incurred.

106. The activity of research and development is different from teaching and is classified separately from teaching in ISIC. In principle, the two activities ought to be distinguished from each other when undertaken within a university or other institute of higher education, although there may be considerable practical difficulties in so doing when the same staff divide their time between both activities. There may also be interaction between teaching and research which makes it not so easy to separate them, even conceptually, in some cases, although most teaching is not linked to research.

D.12 The output of exploration

107. Scientific exploration to discover new minerals, fuel or other natural deposits is a form of productive activity which is similar to research and development. When carried out by enterprises on their own behalf, it is a secondary activity for which a separate establishment should be identified in the production accounts by industry. The output is valued on the basis of total production costs incurred, in the same way as own-account construction on research and development. When carried out by separate, specialized enterprises, the output is valued on the basis of the receipts from sales, contracts, commissions, fees, etc., in the usual way. When carried out by government units or non-profit institutions, the output is non-market and valued on the basis of the total production costs incurred.

108. The output of exploration does not consist of the value of any new sub-soil assets discovered. The output of exploration is a service provided to the institutional unit which pays for the exploration, whether the exploration is successful or not, in much the same way that the provision of medical service does not depend on whether the patient recovers. The value of newly discovered assets is recorded as an exogenous change in assets in the reconciliation account linking the opening and closing balance sheets of the institutional unit which claims ownership rights over them.

E. NON-MARKET OUTPUT

E.1 Introduction

109. Non-market output consists of output which is not undertaken for commercial reasons and whose production is not organized on the market basis. The amounts produced and consumed are not determined by the forces of supply and demand operating through the price mechanism.

110. There are two main kinds of non-market production which tend to be found in practice. The first is the provision of collective services (i.e., "public goods") to the community as a whole, or certain sections of the community, by government units or non-profit institutions. The second consists mostly of services, such as education or health, provided free, or almost free, to individual households, again by government units or non-profit institutions.

111. Collective services consist of services such as public administration and defence, the maintenance of law and order, the provision of security, public health and sanitation, regulation and the enforcement of public standards, and so on. They are described in more detail in Chapter ... below. As households or other institutional units consume such services collectively without any action on their part, the amounts consumed by individual units cannot be monitored or quantified. Individual units cannot therefore be required to pay according to their individual usage, so that there is market failure. The production of such services has to be organized and financed collectively, and this provides an economic rationale for government intervention. The government becomes the instrument to which the community delegates decisions about the production of collective services, the costs of production being financed out of taxation or other government revenues.

112. A similar rationale may be provided for the productive activities of non-profit institutions, such as trade unions, or other associations, which provide collective services to their members financed out of subscriptions or dues.

113. Governments and non-profit institutions also provide free services, such as health and education, to individual households for which the latter could be required to pay individually. In such cases, the reason for government intervention is not market failure, but a political decision to redistribute resources within the community by means of transfers in kind. However, the provision of free services has in common with the provision of collective services the fact that decisions about the amounts of such services produced are not determined by market forces through the price mechanism. There may well be excess demand for, or supply of, such services in consequence.

E.2 The definition and valuation of non-market output

114. The distinguishing feature of non-market output is that either there are no receipts from sales, or receipts are relatively small and do not determine the amounts produced. It follows that the production of non-market output must be financed entirely, or largely, out of other sources, such as taxation, other government revenue, donations, membership dues, etc.

115. Non-market output may therefore be defined as output which is provided to other institutional units, individually or collectively, for which either there are no receipts from sales or the receipts from sales are so small in relation to the costs of production that they do not determine the amounts produced. This implies that sales must cover less than a half the costs of production, and usually much less than half.

116. The value of non-market output has to be imputed and is taken to be equal to its total costs of production: that is, the sum of:

- intermediate consumption;
- compensation of employees;
- taxes on production;
- consumption of fixed capital.

Since there is no market price, the concept of a surplus of price over average cost of production has no meaning or relevance. The net operating surplus is non-existent and must be taken as zero for non-market output. In the absence of an independently determined price for output, even the concept of value added cannot have the same meaning as for market output. In practice, the gross value added from the production of non-market output has to be equated with the difference between the imputed value of output and intermediate consumption - i.e., the sum of compensation of employees, taxes on production and consumption of fixed capital.

117. The value of non-market output is imputed on the basis of total production costs even if not all of the output is provided free. If some of the output is sold at very low prices, that output is still valued at its costs of production and not by the receipts from its sale. Such output must not be double counted. The sales receipts reduce the amount of financing required from other sources without affecting the value of the output. The net operating surplus remains zero.

118. When the non-market output consists of individual services, such as education or health, there is likely to exist some market production in parallel. It might appear feasible therefore to value the output of non-market services using market prices instead of production costs. However, the nature and quality of services provided by market and non-market producers tend to be very different from each other even though falling under the same broad heading, such as education or health. In practice, market and non-market producers tend to meet different needs and there are unlikely to be exact market equivalents for most non-market services, at least on a large scale. It is usually impossible to find sufficiently reliable price information which would enable the large-scale production of non-market output to be valued independently of costs of production in an economically meaningful way. Non-market output tends to be intrinsically different and it is

recommended that it should always be valued on the basis of the production costs incurred. These costs reflect the values of the resources which government units or non-profit institutions consider it worthwhile to devote to the production of non-market output.

E.3 Market output as a substitute for non-market output

119. Government units and non-profit institutions provide collective or individual services and possibly some goods, free or almost free to households because of market failure or for political, social, philanthropic or other reasons. However, the decision to provide such goods or services does not oblige government units or non-profit institutions also to engage in their production, with the possible exception of defence and the maintenance of law and order, where governments may consider it essential to control and manage the producer units directly themselves. Otherwise, governments have a choice between producing the goods and services or purchasing the services from market producers. For example, governments may contract producers of health or education services to provide the services free, or at prices well below cost, to households, while paying the full market prices of those services to the producers. They may also engage private producers to provide collective services, such as sanitation, or even security.

120. When governments or non-profit institutions purchase goods or services from private producers, which are provided free or at greatly reduced prices to households, it is clear that the goods and services are market. The outputs are produced by private producers whose receipts are determined entirely by their sales. The outputs are valued at market prices - i.e., the prices actually paid by government units or NPIs. The expenditures on such goods and services are incurred by the government units or NPIs and not by the households which may acquire them.

121. The extent of non-market production in an economy is thus determined not so much by the extent to which governments decide to redistribute resources to households by providing transfers in kind, but by the extent to which they choose to produce the goods or services in question themselves, rather than purchase them from private producers.

E.4 Non-market output and non-marketed output

122. Non-market output is essentially output for which no proper market exists, as distinct from output which could, in principle, have been sold on the market but which is retained by the producer for own consumption or gross capital formation. Output which could have been sold on the market but is not sold may be described as non-marketed output. The similarity in terminology between non-market and non-marketed output is liable to lead to some confusion.

123. Non-marketed production is virtually synonymous with own-account production. Own-account production should always be valued on the basis of the corresponding basic prices on the market and poses no valuation problems, at least in principle. In the case of construction, research and development and other processes of production which may produce unique outputs, it may be impossible to find exact equivalents on the market, so that production costs may have to be used as proxies for market price in practice. On the other hand, in the case of the own-account production of agricultural products, for example, for which market prices should be available, the non-marketed output should be valued in the same way as marketed output. In contrast to non-market production, non-marketed production will normally generate an operating surplus or deficit.

F. INTERMEDIATE CONSUMPTION

124. Intermediate consumption consists of the services and non-durable goods which are transformed or used up by a process of production within the accounting period. Intermediate inputs must consist of goods and services which have been produced by other processes of production.

125. Two types of intermediate inputs may be distinguished. The first consists of materials or semi-processed goods which re-emerge from the production process after having been physically transformed and incorporated into the outputs. Transformation processes of this kind are characteristic of industries which produce goods such as those listed in the first six tabulation categories of the ISIC, A to F. The second type of input consists of finished products - goods or services - which may be used not only for intermediate consumption; for example, stationery, books and other kinds of office materials; miscellaneous consumer goods, such as food, drink, clothing, medicines, etc.; fuels and power; cleaning materials; spare parts and replacement items; and finally, a whole range of services, such as transportation, business services or financial services. These kinds of intermediate inputs are generally entirely consumed and do not re-emerge from the process of production in any recognizable form as outputs. Every establishment or enterprise uses a mixture of both kinds of inputs in practice. However, goods producing industries tend to make more use of the first type of intermediate input, while service industries use mainly the second.

126. Whether a good is transformed or consumed, it must be entirely absorbed by the process of production during the accounting period to be counted as an intermediate input. Capital goods which are only partly used up during the period are not included with intermediate inputs. The gradual using up of durable goods whose service life extends over several accounting periods is treated as the consumption of fixed capital. The distinction between the two types of consumption is elaborated in more detail below.

F.1 The timing and valuation of intermediate consumption

127. The intermediate consumption of a good or service is recorded at the time when the good or service enters the process of production, as distinct from the time when it was acquired by the producer. In practice, the two times coincide for inputs of services, but not for goods, which may be acquired some time in advance of their use in production. A good or service consumed as an intermediate input is normally valued at the purchaser's price prevailing at the time it enters the process of production. This ensures that a good is always valued at the price which it would cost the producer to replace it at the time it is consumed. As explained in more detail in paragraphs ___, the purchaser's price can be decomposed into three elements, namely:

(i) the basic price received by the producer of the good or service;

(ii) any transportation or other costs incurred by the purchaser in taking delivery of a good at the establishment at which it is to be used, plus the cumulative trade margin incurred on a good which passes through the chain of wholesale or retail distribution. This component is always zero, of course, for services which are delivered directly from producer to purchasers;

(iii) any tax (or subsidy) on the product levied on the good or service when delivered by its producer or while in transit to the purchaser.

128. For purposes of the System's input-output table, it may be necessary to distinguish all three elements just listed, whereas in other tables or accounts it may not be necessary. In every case, however, the relevant purchaser's price is that prevailing at the time the intermediate input enters the production process.

129. In practice, establishments do not usually attempt to record the actual use of goods in production directly. Instead, they keep records of purchases of goods or raw materials intended to be used as inputs, and also of any changes in the amounts of such goods which are held in stock. An estimate of intermediate consumption can then be derived by subtracting any increases in stocks from the purchases made during a given accounting period. However, changes in stocks must be valued in the appropriate way if correct measures of the values of intermediate consumption are to be derived. This implies that for each item which passes through stocks, the purchaser's price originally paid plus the value of the recorded stock change for that item must equal the purchaser's price prevailing at the time it is withdrawn from stock to enter the process of production. This relationship holds when the changes in stocks are measured by valuing items which enter stock, or which are withdrawn from stock, at the purchaser's prices prevailing at the time the entries or withdrawals take place. This is exactly the same principle as that used to value changes in stocks of goods produced as outputs from the production process.

130. Thus, the explanation given earlier of the properties and behaviour of the System's measure of stock changes applies equally to stocks of goods intended to be used as inputs as to stocks of goods produced as outputs. A more detailed discussion of the measurement of changes in stocks is given in Chapter ..., in which it is also shown that the distortions which are introduced into the measurement of gross value added and the operating surplus by the use of incorrect measures of changes in stocks of inputs and outputs are cumulative and therefore potentially very serious in situations of high inflation.

F.1.1 Consistency between inputs and outputs

131. Inputs and outputs have to be measured in a consistent manner. As explained earlier, when goods or services produced by ancillary or secondary activities are fed back as inputs into the principal process of production within the same establishment, they are not recorded as part of the intermediate input or the output of that establishment. Conversely, deliveries of goods and services between different establishments belonging to the same enterprise are recorded as outputs by the producting establishments and must therefore be recorded as intermediate inputs by the receiving establishments. In order not to change the value added of the enterprise as a whole, the outputs and inputs have to be valued consistently. Any transportation costs incurred between the two establishments should be included in the purchaser's price imputed for the receiving establishment when the transport is provided by a separate establishment or enterprise, but they should not be included when the transportation is provided a unit whose activity is treated as ancillary to both establishments.

F.2 The boundary between intermediate consumption and payments to primary factors of production

132. Certain goods and services used up during the course of production do not enter directly into the process of production itself but are consumed by employees who are themselves working on that process. In such cases, it is necessary to decide whether the goods and services are to be treated as intermediate consumption or, alternatively, as goods and services which are provided as remuneration in kind to employees. In general, when the goods or services supplied by employers are used by employees in their own time and at their own discretion for the direct satisfaction of their needs or wants, their provision must be treated as remuneration in kind. Some goods and services must increase the real incomes of employees. However, when employees are obliged to use the goods or services in order to enable them to carry out their work properly, such use must be treated as intermediate consumption. It is immaterial to the employer whether they are treated as intermediate consumption or factor payments - they are both costs from the employer's viewpoint - and the operating surplus is the same. However, reclassifying such goods and services from remuneration in kind to intermediate consumption reduces value added and factor incomes by equal amounts, and hence GDP as a whole. Although the boundary of production for the System is not affected, the measurement of gross value added and GDP is involved.

133. The following types of goods and services provided to employees must be treated as part of the intermediate consumption of the establishment or enterprise of the employer:

(1) Tools or equipment, including vehicles, which the employee uses exclusively or principally at work;

(2) Clothing or footwear of a kind which ordinary consumers do not choose to purchase or wear and which are worn exclusively, or primarily, for work, e.g., protective clothing, overalls, or uniforms. However, uniforms or other special clothing which employees choose to wear extensively off-duty instead of ordinary clothing should be treated as remuneration in kind;

(3) Accommodation of a kind which ordinary households do not choose to live in - barracks, cabins, dormitories, huts and so on - and which is to be used by the households to which the employees belong;

(4) Transportation and hotel services associated with travel which an employee is obliged to undertake for the employer and which the employee would not choose to undertake in his own time and at his own expense;

(5) Changing facilities, washrooms, showers, etc. which are necessitated by the nature of the work; medical examinations or other checks which are required because of the nature of the work.

134. In some instances the employee may be initially responsible for purchasing the kinds of goods or services listed above and be subsequently reimbursed in cash by the employer. Such cash payments must be treated as intermediate consumption by the employer and not as part of the employee's wages and salaries, even if they are actually paid together with wages and salaries.

135. The provision of other kinds of goods and services, such as meals, ordinary housing, vehicles or other durable consumer goods, transportation to and from work, etc. should be treated as remuneration in kind, as explained more fully in Chapter ... These are all goods and services of a kind which ordinary consumers purchase and which otherwise the employees would buy for themselves out of their money incomes.

G. THE BOUNDARY BETWEEN INTERMEDIATE CONSUMPTION AND CAPITAL EXPENDITURES

136. Intermediate consumption is intended to cover the costs of goods and services which are transformed or entirely used up in the course of production during the accounting period. It does not, therefore, cover the use of capital goods nor expenditures on new capital goods, research and development or exploration. It is necessary, therefore, to delineate the boundary between these kinds of expenditures and intermediate consumption more precisely.

G.1 Small tools

137. Capital goods are goods which are used for purposes of production and which are typically durable, large and expensive. A durable good is one which, with normal usage, may be used repeatedly or continuously over several accounting periods, and whose working life may range anywhere between two or three years and 50 years or more. However, not all durable producer goods have to be treated as capital goods because exceptions may be made in the case of durable goods which are small, inexpensive and used to perform relatively simple operations. Expenditures on these kinds of goods by enterprises may be treated as intermediate consumption when such expenditures are very small compared with expenditures on other machinery and equipment. Examples of such goods are hand tools such as saws, spades, knives, axes, hammers, screw drivers, spanners and so on. However, in some developing countries, such tools may account for a significant part of the stock of durable producers' goods, in which case they may be treated as capital goods.

G.2 Repairs and maintenance

138. The distinction between maintenance, repairs and replacement and gross fixed capital formation is sometimes difficult. As a general rule, the maintenance and repair of a capital good which is already in use in production must be treated as intermediate consumption. Ordinary maintenance and repair, including the replacement of defective parts, are typical ancillary activities when carried out within the same establishment, but they may also be provided by a separate establishment within the same enterprise which specializes in repairs and maintenance, or they may be purchased from other enterprises which provide services on a market basis.

139. The practical problem is to distinguish ordinary maintenance and repairs from major renovations, reconstructions or enlargements of capital goods which go considerably beyond what is required simply in order to keep the capital goods functioning in the same way as previously. Major renovations, reconstructions or enlargements of existing capital goods may both enhance their productive capacity and prolong their working life beyond what would normally be expected. They must be treated as gross fixed capital formation, as they increase the stock of capital goods in existence.

140. Ordinary maintenance and repairs are normally characterized by two elements:

(1) Maintenance and repairs are activities which the owners or users of capital goods are obliged to undertake periodically in order to be able to utilize a capital good over its expected service life. They are current costs which are necessarily incurred if the capital good is to continue to be used in production. It is not economic for the owner or user to neglect maintenance and repairs, as the normal service life may be drastically shortened in consequence;

(2) The second characteristic of maintenance and repairs is that they are not intended to bring about a change in the capital good or its performance, but simply to maintain it in good working order or to restore it to its previous condition in the event of a breakdown. Parts which become worn out are replaced by new parts of the same kind without changing the basic nature of the capital good.

141. On the other hand, major renovations or enlargements to capital goods are generally characterized by the following elements:

(1) The decision to renovate, reconstruct or enlarge a capital good is not dictated by current production needs. It is a deliberate investment decision which may be undertaken at any time, irrespective of the condition of the existing good. Major renovations of ships, buildings or other structures are frequently undertaken well before the end of their normal service lives and cannot be interpreted as current production costs.

(2) Any major change in an existing capital good which improves its performance or capacity must be treated as gross fixed capital formation. Enlarging or extending on existing building or structure obviously constitutes a major change in this sense, but a complete refitting or restructuring of the interior of a building, or ship, also qualifies.

142. There will inevitably be difficult borderline cases, but in general maintenance and repairs may be distinguished by the fact that they are activities which the owner or user of the good is obliged to undertake in order to continue using the good over its normal service life for the purpose for which it was designed, whereas renovations or enlargements are made on the basis of investment decisions which involve some planned change in the good or its use over a number of future periods.

G.3 Market research and research and development

143. It is necessary to distinguish market research, which is treated as a business service and listed under Class 7413 of the ISIC, from research and development of a scientific nature which comprises Division 73 of the ISIC. Market research is treated in the same way as other business services, such as accounting or legal services. If conducted on a small scale, it may be treated as an ancillary activity. When the market research is conducted by a separate establishment within the same enterprise, or purchased from an outside market research agency, the services received or purchased are treated as intermediate inputs into the process of production whose output is the subject of the market research.

144. On the other hand, research and development is not a good or service which is consumed by a process of production and which can be expected to vary directly with the level of that production. On the contrary, the amount of research and

development undertaken by enterprise is not determined by the level of its current output being undertaken in order to develop new products or new processes of production which are expected to yield benefits in future periods of time. Research and development is therefore not an input consumed by an ongoing process of production and cannot be treated as intermediate consumption. It also follows that it should not be treated as an ancillary activity. Any unit concerned with research and development should, in principle, be treated as a separate establishment.

145. Research and development undertaken by an enterprise on its own account is treated in a similar manner to own account construction. It forms part of the imputed output of an enterprise and should be attributed to a separate establishment within the enterprise. Research and development undertaken by government units or non-profit institutions forms part of the collective output of such units and, as such, is not to be included in the intermediate consumption of any enterprise.

G.4 Exploration

146. Like research and development, scientific exploration for minerals, fuels or other sub-soil assets, is not a current cost of production and which varies according to the level of the output produced. It is determined by quite different factors. Expenditures on exploration cannot therefore be treated as part of the intermediate consumption of an establishment or enterprise and cannot be treated as an ancillary activity.

G.5 Collective services provided by government or non-profit institutions

147. The collective services produced by government are not included in the intermediate consumption of enterprises. These services, it may be recalled, cover not only public administration and defence, but also research and development carried out by government establishments. It is impossible to allocate the consumption of collective services to individual enterprises, so that these kinds of services never appear in their intermediate consumption.

148. On the other hand, it can be argued that non-profit institutions owned by associations of businesses and which exist to promote the interests of those same businesses are engaged in a form of market production. The subscriptions or contributions paid by the members of the associations can therefore be regarded as payments for services rendered to individual enterprises. Thus, the services are to be treated as intermediate inputs into the production processes of the enterprises concerned, and they are valued by the amounts paid in subscriptions.

G.6 Military equipment

149. In the past, it has been conventional in national accounts to treat all goods acquired by governmental establishments engaged in the production of defence services, that is Class 7522 of the ISIC, as intermediate inputs whether the goods are non-durable or durable. Thus, ships, aircraft, vehicles and other equipment acquired by military establishments have always been treated as intermediate inputs; similarly, the construction of buildings, roads, airfields, docks, etc. for use by military establishments has always been treated as intermediate consumption rather than capital formation. This implies that the output from Class 7522 is produced entirely by labour without any inputs of capital. The rationale for this

has never been explained. It has sometimes been suggested that expenditures by military establishments must always be treated as current because it is impossible to estimate the service lives of the assets concerned, but the service lives of most of the assets are no more difficult to estimate than for ordinary assets.

150. In order to be treated as capital, a good must not only be durable but used repeatedly or continuously in production over a number of accounting periods. However, if military weapons such as guns, rockets, missiles and their warheads, are actually used in combat, they are used to destroy life and property and are themselves instantaneously consumed in their entirety. This activity cannot be construed as production in any sense. Thus, the use of destructive weapons for the purposes for which they are desiged cannot be treated as an input into an economic process of production. This obvious point seems to underlie the reluctance to treat military weapons as capital goods, and by implication as factors of production.

151. The provision of defence or security, however, can certainly be construed as form of production from which people derive satisfaction and for which they are prepared to pay, individually or collectively. Moreover, the provision of defence, like any other productive activity, does require inputs of capital as well as of labour; that is, the repeated or continuous usage of certain capital goods over a number of accounting periods. Thus, it is necessary to draw a distinction between those durable goods which are actually used up in the production of defence, and in much the same way as in any other type of productive activity, and those which either are never used or, if they are used, do not contribute inputs into a process of production. Basically this is a distinction between ordinary capital goods of a kind used throughout the economy and destructive military weapons designed to be used in combat.

152. Following this line of reasoning, it may be concluded that guns, rockets, missiles and their warheads and silos are not to be treated as capital goods. By extension, it is also appropriate that warships, submarines, fighter aircraft and bombers, and armoured vehicles whose sole function is to deliver or release such weapons should not be treated as capital goods. On the other hand, the airfields, docks or other facilities used as bases by these same ships, submarines or aircraft can be used with little or no modification for quite different purposes of a non-military nature. Very often such facilities are actually shared between military and civilian use. Moreover, the manner in which the facilities are utilized is essentially the same whether they are being used by military personnel or by others.

153. For these reasons, only certain types of durable goods acquired by military establishments should be treated as consumption goods, namely those goods whose purpose is destruction and not production. In practice, these can be identified by reference to a classification of products, namely the Central Product Classification, and consist of military weapons and the vehicles, ships and aircraft whose sole function is to deliver such weapons. On the other hand, the construction of buildings for use by military personnel, and also of roads, bridges, airfields, docks, etc. for use by military establishments should be treated as capital formation. In addition, machinery and equipment of the same type as that used by civil establishments for non-military purposes should also be treated as capital formation: for example, vehicles, ships or aircraft used for the transport of persons or goods; computers and office machinery and equipment; and so on.

154. Guns, grenades, other light weapons and armoured vehicles are also acquired by non-military establishments engaged in internal security or policing activities and classified under 7523 of the ISIC - public order and safety activities. In addition, light weapons and armoured vehicles may be acquired by establishments engaged in the provision of security services on a commercial basis and classified under class 7492 of the ISIC. Although in principle such weapons ought not to be treated as capital goods, the case is not so compelling as for rockets, missiles and large weapons which are capable of causing extensive and indiscriminate damage. Light weapons or armoured vehicles acquired by non-military establishments are therefore treated as capital goods, even though expenditures on the same kind of weaponry by military establishments would be treated as intermediate.

155. Hospitals, colleges, schools, etc. controlled by the military should, in principle, be treated as separate establishments for production purposes and thus not classified under ISIC 7522. They should be allocated to the appropriate Classes of Divisions 80 and 85 of the ISIC. The construction of military hospitals and schools, and the installation of machinery and equipment in them must always be treated as capital formation.

H. THE BOUNDARY BETWEEN INTERMEDIATE CONSUMPTION AND VALUE ADDED

156. As already noted, the types of services produced by ancillary activities can either be produced and consumed on a small scale within the same establishment, or they can be obtained from specialist establishments within the same enterprise or specialist producers on the market. If an establishment switches from the ancillary production of one of these services to obtaining it from a specialist producer, the consequence is to increase the intermediate consumption of the establishment and to reduce its value added. This is because the service produced by an ancillary activity is not explicitly recorded, neither as an output from that activity nor as an input into the principal activity of the establishment. Only the costs of producing the service are recorded, including compensation of employees and capital consumption which form part of value added. Changes in the ratio of intermediate consumption to value added which result from switching between ancillary production and specialist producers reflect changes in organization of production rather than the technology of production. Despite the fact that recorded input-output ratios change, the basic technology used may remain essentially the same.

157. There is a second, and equally important, way in which the boundary between intermediate consumption and value added may be shifted while continuing to use the same technology or process of production. This occurs when an enterprise rents a machine instead of purchasing it. The activity of operating leasing has been described earlier in this chapter where it was shown that users may prefer to rent equipment rather than purchase it. When a user rents equipment the rental paid is treated as the purchase of a service which forms party of his intermediate consumption. Thus, the effect of renting rather than purchasing is to reduce value added and to increase intermediate consumption.

158. There is also a third way in which the distribution of the costs of production between intermediate consumption and value added may be affected by the way in which the producer organizes, or finances, his production. Rentals on buildings are treated in the same way as the rentals on machinery or equipment, namely as intermediate costs. Rent on land, on the other hand, is not considered as the payment for a service rendered, but as the payment of property income out of value

added. Thus, the decision to rent or buy land on which production is carried out does not affect the split between intermediate consumption and value added, whereas the decision to rent or to buy a building does so.

159. There are thus three ways in which the level of intermediate consumption, and its ratio to total output, may be affected by the way in which the production process is organized; namely the extent to which ancillary activities are sub-contracted out to specialist producers; the extent to which machinery and equipment are hired under operating leases rather than purchased; and the extent to which buildings are rented rather than purchased. The combined effect of the three factors may lead to significant variations in the ratio of intermediate consumption to total output, both over time and between countries, for producers utilizing essentially the same basic technology of production.

I. THE PRODUCTION ACCOUNTS AND VALUE ADDED

160. The System calls for two sets of production accounts, namely by sector and by industry: that is, for groups of institutional units and for groups of establishments. An establishment can be simultaneously cross-classified both by the type of productive activity on which it is engaged and by the type of institutional unit which owns it, but this type of cross-classification is undertaken only for total output, total intermediate inputs, and the principal charges against gross value added. This cross-classification, which enables the flows of income which are generated within individual industries, to be mapped into flows of income generated within different institutional sectors, is described in the final section of the chapter on production accounts for industries and the input-output table.

161. This section is concerned only with the production accounts which the System requires to be compiled for institutional sectors: that is, for groups of institutional units in their capacity as producers of goods and services. These accounts are much simpler than the corresponding accounts by industry in the input-output tables because they do not require a breakdown of total intermediate consumption by type of good or service.

162. The three basic components of a production account are output, intermediate consumption and the balancing items, gross value added. The ways in which output and intermediate consumption are to be measured have been described in some detail in the previous sections. This section will therefore focus on the measurement and interpretation of the fundamental concept of value added.

163. Value added is a measure of the increase in value created by production. It may be defined as the amount by which the value of the output from a process of production exceeds the value of the intermediate inputs consumed by that process. The process itself can be described by a vector of the quantities of goods and services consumed or produced in which the inputs carry a negative sign. Gross value added may then be defined succinctly as the inner product of that quantity vector with a vector of prices. Alternatively, let there be

m intermediate inputs qi with prices pi

n outputs qj with prices pj

$$\text{then, gross value added} = \overset{n}{\underset{j}{}}\; pjqj - \overset{m}{\underset{i}{}}\; piqi$$

The pi's and pj's belong to a single price vector, the subscripts being used merely to distinguish inputs from outputs.

164. The measurement of value added requires a price vector to serve as the yardstick by which the increase in value is measured. The economic meaning and significance to be attached to value added therefore depends on the nature or relevance of the price vector chosen. Different values added may be associated with a given production process by choosing different price vectors: for example, vectors for different time periods or different countries.

165. As intermediate inputs do not include the use of capital goods, the value added obtained by subtracting the value of intermediate inputs from the value of the outputs is generally described as "gross value added". Unless otherwise specified, value added should be understood to be gross. "Net value added" is obtained by subtracting the consumption of fixed capital from gross value added.

I.1 The concept of gross value added

166. Two properties of gross value added should be noted:

(1) it is essentially an output measure which avoids double counting the value of inputs of goods and services produced by other producers in the same period;

(2) it is also the balancing item in the production account: in order to calculate gross value added it is both necessary and sufficient to know the values of output and intermediate consumption.

167. As gross value added is equal to the difference between the values of two different sets of goods and services, outputs and inputs, it cannot itself be identified with the value of any specific set of goods or services. Even GDP for the national economy as a whole represents the difference between two values, namely the amount by which the value of final expenditures exceeds that of imports. As a balancing item, gross value added has no dimensions of its own. There are no physical or quantity units in which it can be expressed and hence it has no price of its own.

168. Gross value added measures the value of output out of which all costs or expenses other than intermediate costs have to be recovered. Three main categories of costs or expenses are distinguished in the System, namely:

- consumption of fixed capital;
- compensation of employees;
- taxes on production paid by the producer, less subsidies received.

The balancing item remaining after the deduction of those charges is the net operating surplus or mixed income in the case of unincorporated enterprises. These costs or expenses are appropriations made out of gross value added and should not be treated as elements from which gross value added is built up. They are no more components of value added than expenditures made out income are components of income. They represent uses of value added.

169. Conceptually, gross value added does not avoid double counting because the costs of the capital goods used up in production are not deducted. The reasons for commonly measuring value added gross are well known: capital consumption is very difficult to measure satisfactorily and it denotes an intra-unit transaction whose value has to be imputed. In principle, however, net value added is to be preferred as it measures the increase in value generated by production after deducting all costs resulting from the use of goods and services.

170. Compensation of employees represents actual and imputed payments to employees for services rendered in production. After deducting both capital consumption and compensation of employees from gross value added, the balance remaining is shared between the the government and the owner(s) of the enterprise. The government is able to appropriate part of gross value added by levying taxes on production of various kinds. The balance remaining after the payment of any taxes on production (less subsidies) is the owner(s) net operating surplus or mixed income. Of course, there are usually further charges which owners still have to meet out of the net operating surplus or mixed income - in particular, interest charges, rent on land or taxes on profits - but these are not treated as direct production costs.

I.1.1 Gross value added at factor costs

171. Compensation of employees and the gross or net operating surplus, or mixed income, are often described as factor incomes: that is payments to factors of production for services contributed to production. Compensation of employees is clearly a payment to labour for services rendered, while the gross or net operating surplus, or mixed income, represents a form of return to the owner(s) of an enterprise, before or after deducting the consumption of fixed capital belonging to the owner. However, the concept of "factor income" is not a clear one and is not required in the System.

172. The sum of the compensation of employees and the gross operating surplus, or mixed income, is generally described as gross value added at factor costs. Although neither factor incomes nor gross value added at factor costs are explicitly recognized as concepts or aggregates in the System they continue to be used by many analysts. It should be emphasized, however, that gross value added at factor costs is essentially an income aggregate and not an output measure. It cannot be derived as the inner product of vectors of actual prices and quantities. It is nevertheless useful for some purposes, and is referred to in later sections of this chapter.

I.2 Valuation

I.2.1 Output prices

173. Gross value added is a function of a single vector of prices. For purposes of exposition, however, the output and the input prices which confront a given producer need to be considered separately. The System recognizes two kinds of output prices, namely the basic price and the producer's price:

> The basic price is the price received by a producer for a unit of a good or service produced as output excluding any tax or subsidy on the product which becomes due for payment as a consequence of its sale or use, a subsidy being treated as a negative tax. It also excludes any delivery charges incurred by the producer of a good when these are invoiced and paid separately.

The producer's price is the price received by a producer for a unit of a good or service produced as output including any tax or subsidy on the product which becomes due for payment as a consequence of its sale or use, a subsidy being treated as a negative tax. It excludes any delivery costs incurred by the producer of a good when these are invoiced and paid separately.

174. The difference between the producer's price and the basic price is thus equal to the amount of any tax, or subsidy, levied per unit of output sold or used. Both the producer's price and the basic price are actual transaction prices which can be observed and reported directly in statistical enquiries.

175. When a system of deductible taxes such as value-added tax, is in operation, the invoiced tax or VAT should be excluded from the producer's price, for reasons explained more fully in Chapter __. The producer's price therefore includes every kind of tax or subsidy on a product, such as an excise tax or a specific tax on a service, except invoiced VAT. This is a major exception when a system of VAT is in operation. In consequence, the producer's price is not clear cut conceptually in the presence of VAT. Partly for this reason, output should be valued at basic prices in preference to producers' prices whenever possible in the production accounts for sectors and also in the input-output tables. The basic price is the amount which is actually retained by the producer and is the price which is most relevant for the analysis of producer behaviour. Basic prices may be easiest to report in practice and also the most reliable. Official "producer price" indices often refer to basic prices rather than to producers' prices as defined above.

I.2.2 Input prices

176. There are also two ways of valuing the inputs of goods and services consumed in production, namely at purchasers' prices or at basic prices. The purchaser's price is essentially the market price from the point of view of the buyer.

177. The purchaser's price is the price paid by the purchaser of a good or service including any additional costs, or delivery charges, which the purchaser incurs in taking possession of a good at the required time and place. When there is a system of VAT in operation, the purchaser's price includes non-deductible VAT (see Chapter __).

178. As explained more fully in the chapter on production accounts by industry and the input-output tables, the purchaser's price differs from the original producer's price by the amount of the additional charges, if any, incurred by the purchaser in taking delivery of a good plus the total trade margin, including any taxes levied at the distribution stage, on a good purchased from a wholesaler or retailer. Purchaser's and producer's prices always coincide, however, in the case of services. Moreover, the value of the total expenditures of producer on intermediate inputs must be the same at purchasers' prices and producers' prices, because the total expenditures at producers' prices include the value of the transport and trade services which the purchaser is deemed to purchase separately. The distinction between purchasers' and producers' prices is therefore not relevant for the production accounts by institutional sector which show only the total value of intermediate consumption.

I.3 Alternative concepts of gross value added

179. It is necessary to consider the implications for gross value added of the fact that more than one method of valuation is used in the System.

I.3.1 Gross value added at market prices

180. From the point of view of a producer, producers' prices are market prices for outputs while purchasers' prices are market prices for inputs. These are the prices, including any taxes or subsidies on products, at which the producer engages in transactions with other institutional units. They represent the amounts paid or received by producers as goods and services are bought or sold. The distinction betweeen producers' prices and purchasers' prices is not particularly relevant for services and only becomes important for goods when the same good, in a physical sense, is valued at two different points in the economic system - when it leaves its place of original production and when it is subsequently purchased at some other location, by which time it is no longer exactly the same good from an economic viewpoint.

181. Even in the absence of a system of deductible taxes such as VAT, the sum of the gross values added at market prices over all producers, whether grouped into sectors or industries, is not identical with GDP at market prices as defined in the System. The reason why this fundamental accounting identity breaks down is that GDP at market prices from the expenditure side is defined as total final expenditures at purchasers' prices less imports valued c.i.f. However, the c.i.f. price does not include taxes on imports and is the equivalent of the basic price. Thus, final expenditures and imports are not valued consistently at purchasers' prices in the definition of GDP at market prices. In consequence, the value of all taxes on imports has to be added to the sum of the gross values added of all producers in order to arrive at GDP at market prices as defined in the System.

182. When there is a system of VAT in operation, there is an element of ambiguity, or indeterminacy, in the concept of the producers' price depending upon the way in which VAT is recorded in the accounts. In the System, it has been decided to define the producer's price as including all taxes or subsidies on the product except invoiced VAT. Purchasers' prices, on the other hand, must include non-deductible VAT. GDP at market prices from the expenditure side therefore includes all non-deductible VAT paid on final expenditures, whereas the sum of the gross values added at market prices over all producers includes no VAT. Thus, not only taxes on imports but also non-deductible VAT drive a wedge between GDP at market prices and the sum of the gross values added at market prices across sectors or industries. In practice, the use of market prices does not lead to simple, clear measures of gross value added by sector or industry when a system of VAT is in operation.

I.3.2 Gross value added at basic prices

183. The difficulties created by taxes on imports and VAT can be avoided if all flows of goods and services are valued at basic prices, but other difficulties are created in their place. From the purchasers' point of view there is little economic interest in recording expenditures, whether intermediate or final, at basic prices. Although it would be possible to define a measure of GDP at basic prices from the expenditure side - i.e., final expenditures excluding taxes on products less imports c.i.f. - there is little demand for such a measure. However, for certain analytical purposes, including the measurement of growth and inflation, GDP at basic prices may be more useful than GDP at factor costs, which is primarily an income rather than an output measure.

I.3.3 Gross value added at mixed prices

184. While there are advantages in recording output at basic prices, especially in the presence of VAT, there are also advantages in recording intermediate expenditures at purchasers' prices as expenditures are normally recorded in this way. However, if different prices are used depending upon whether the goods or services are recorded as inputs or as outputs, the resulting measure of value added may not measure the increase in value resulting from production, *ceteris paribus*. There is no corresponding aggregate measure of GDP from the final expenditure side.

I.3.4 The inter-relationship between different measures of gross value added

185. Output may be measured either at basic prices or at producers' prices (excluding invoiced VAT if a system of VAT is in operation). Inputs are normally valued at purchasers' prices but could be valued at basic prices when output is so valued. The different implications for gross value added of these different methods of valuation are compared in this section.

186. When goods or services are valued at basic prices, the transactions between the buyers and the sellers are recorded excluding any taxes or subsidies paid. The taxes must therefore be recorded as being paid separately by the *purchaser* to general government, and the subsidies as being received by the purchaser. This method of decomposing transactions is similar to that followed when a purchaser's price is split between the producer's price and the transport or trade margins. In some countries it is common practice for sellers to itemize separately all taxes on products (and not simply value added taxes) on their invoices to their customers, and the practice may become more widespread as a result of increasing computerization.

187. The implications for the charges which have to be paid out of gross value added as a result of adopting alternative methods of valuing outputs and inputs are illustrated in Table 1. The different methods of valuation all result from different treatments of taxes on products, either on inputs or on outputs. These different conventions cannot affect the factor incomes paid out of gross value added and it can be seen that gross value added at factor costs must always be the same whatever method of valuing inputs and outputs is chosen.

188. G1 refers to gross value added when both inputs and outputs are valued at basic prices. G1 has the advantage that taxes on intermediate inputs are treated in the same way as other taxes on production (i.e. taxes on land, labour or capital employed in production). Thus, all taxes on inputs, whether intermediate or not, are treated consistently as appropriations out of the producer's gross value added. This follows from the fact that when transactions are recorded at basic prices, the purchaser is deemed to pay any taxes on products to the government and not to the seller.

189. G2 refers to gross value added when output is valued at basic prices and intermediate inputs at purchasers' prices including taxes on products. In this case, only "other taxes on production" constitute charges against the producer's gross value added as the taxes on intermediate inputs are deemed to be an integral part of intermediate consumption instead of being paid out of gross value added. Although this is the preferred method for calculations the gross value added of individual sectors, or industries, in the System, its total across all sectors, or industries, is not itself a recognized macro-economic aggregate.

Table 1

Charges against gross value added under different methods of valuing outputs and inputs

	Output valued at:		
	Basic prices	Basic prices	Producers' prices
(1) Total intermediate consumption valued at:			
(1.1) Purchasers' prices		*	*
(1.2) Basic prices	*		
(2) Gross valued added, of which:	G1	G2	G3
(2.1) Net taxes on products paid on inputs	*		
(2.2) Net taxes on products produced as outputs (excluding invoiced VAT)			*
(2.3) Other taxes on production	*	*	*
(2.4) Gross value added at factor cost, of which:	*	*	*
(2.41) Consumption of fixed capital	*	*	*
(2.42) Compensation of employees	*	*	*
(2.43) Net operating surplus	*	*	*

Note: An asterisk indicates that a value is recorded for that item. The numerical values of the asterisks within the same row are identical.

190. G3 refers to gross value added at market prices: that is, when output is valued at producers' prices (excluding any invoiced VAT when applicable) and intermediate consumption at purchasers' prices. In the absence of a system of deducible taxes such as VAT this measure has a clear meaning, but its significance is obscured when some taxes are deductible for certain purchasers but not for others. When gross value added is measured at market prices, the taxes to be paid out of gross value added consist of taxes on products levied on outputs (except invoiced VAT) plus other taxes on production.

CHAPTER VI: FINAL EXPENDITURES AND USES*

A. INTRODUCTION

1. The goods and services produced by establishments or enterprises may either be used up within the same accounting period as intermediate consumption by other establishments or enterprises or be allocated for final uses. The treatment of intermediate consumption has been dealt with in the previous chapter, and the present chapter is concerned with the definition, measurement and valuation of the various categories of final expenditures.

A.1 Final uses

2. The ultimate objective of economic activity is the final consumption of goods and services by households, individually or collectively. This final consumption may be financed in two ways. It may either be paid for directly by individual households themselves or financed by government or PNPIs. The precise coverage, measurement and valuation of consumption expenditures incurred by households, government or PNPIs have therefore to be specified.

3. Other goods and services are produced in order to maintain or enhance the economy's capacity to produce goods and services in future periods. These mostly consist of the new capital goods produced within the accounting period which are added to the existing stock of capital goods to be used in production in the future. Any changes in the stocks of non-durable goods or work-in-progress held by producers are also classified under final uses as the goods in question are not consumed within the period. In addition, the services produced by establishments engaged on research, development and scientific exploration are treated as enhancing the economy's capacity to produce in future periods.

4. Some goods and services are sold to non-resident economic units as exports. As the goods and services leave the economy, exports are also treated as a final use of the goods and services in question. Imports may be regarded as negative exports in this context.

5. It is convenient to consider the definition, measurement and valuation of capital consumption in this chapter in conjunction with gross fixed capital formation, even though capital consumption is actually a cost of production and not a component of final demand.

B. EXPENDITURES' ACQUISITIONS AND USES

6. Expenditures on goods and services must be clearly distinguished from acquisitions of goods and services, which in turn must be clearly distinguished from the actual or physical use of those goods and services in processes of production or consumption.

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

B.1 Expenditures

7. Expenditures on goods and services are defined as the amounts which become due for payment to suppliers or sellers for the goods or services which they provide to other institutional units. It should be emphasized that the unit which incurs the obligation to pay need not be the same as the unit which takes delivery of the goods or services. In particular, government units, or NPIs, often incur expenditures on goods or services which are delivered to households.

B.1.1 The incidence of expenditures

8. In the System, expenditures are attributed to the units which ultimately incur the liability to pay as distinct from the units which may make the initial payments to the suppliers. The unit which makes the payment is usually also the one which incurs the cost, but this is not always the case. For example, one unit may purchase a good acting as the agent of another unit which subsequently takes delivery and reimburses the agent: in this case, the expenditure cannot be attributed to the agent even though he actually pays the seller. Another example is that of a household which purchases a good or service which it retains itself but is subsequently reimbursed out of social security funds for some or all of the amounts spent. In this case, the amount reimbursed is treated as expenditure by the social security fund and not as a transfer.

B.1.2 Actual and imputed expenditures

9. Expenditures may be actual or imputed. Imputed expenditures are attributed to the units which are deemed to bear the costs. For example, employees receiving compensation in kind incur the expenditures on the goods or services they receive from their employers. They are deemed first to receive imputed wages or salaries in compensation for work done and then to make the expenditures out of their own imputed wages or salaries. Similarly, institutional units, whether households or enterprises, which retain for their own consumption or gross capital formation goods or services which they have produced themselves clearly bear the cost themselves.

B.1.3 The timing of expenditures

10. Expenditures on goods or services occur at the moment when either:

(1) the ownership of the good is transferred from the supplier, or seller, to the unit which becomes the new owner, or

(2) the delivery of a service by the producer is completed to the satisfaction of the consumer.

11. The times at which suppliers or sellers are actually paid for the goods or services which they deliver are not necessarily relevant to the timing of expenditures. As already explained in Chapter 1, payments may either precede, or lag behind, the actual deliveries of the goods or services sold by varying amounts of time. For this reason, the values of expenditures are measured by the amounts receivable and payable at the times the expenditures are incurred. When payments are advanced or deferred, there must be consequential changes in the financial assets or liabilities (other than cash) of the two units concerned at the time the change of ownership takes place or the service is delivered. In practice, one unit usually extends some form of credit to the other.

12. The precise moment at which the ownership of a good is transferred, or delivery of service completed to the satisfaction of the consumer, may not be easy to determine in practice in some cases. It may be perceived differently, or even disputed, by the two parties concerned. These difficulties are likely to be greatest in the case of imports and exports of goods and services when weeks, or months, may elapse while the goods are in transit from seller to buyer. In order to try to introduce some consistency at an international level into the recording of both the timing and valuation of goods which are exported by one country and imported by another, the convention is adopted that the change of ownership of goods takes place when the goods cross the frontier of the exporting country.

B.1.4 Sales of existing goods as negative expenditures

13. An existing good is a good which has already been sold (or otherwise disposed of) to a user by the unit which produced it, either in the current period or in a previous period. When an existing good is resold, the amount received from its sale is treated in the System as negative expenditure on the part of the unit selling it. Durable goods may have to be reclassified as a result of being resold: for example, the sale to a household of an automobile previously used by an enterprise for business purposes is treated as negative gross capital formation and positive household consumption expenditure.

B.2 Acquisitions

14. Goods and services are acquired by institutional units when they become the new owners of the goods or when the provision of services to them is completed. The values of acquisitions differ from those of expenditures to the extent that some of the goods or services acquired by some institutional units may be paid for, in whole or in part, by other institutional units.

15. The times at which goods and services are acquired are when the change of ownership occurs or the provision of the services is completed. Acquisitions are valued at the prices paid by the units which incur the expenditures. The total value of the goods and services acquired by a household for purposes of final consumption is described as its actual consumption.

B.3 Uses

16. Goods and services are used when institutional units make use of them in a process of production or for the direct satisfaction of human needs or wants.

17. In the case of goods, the distinction between acquisition and use is fairly clear. Producers acquire goods which they may hold in stock for varying amounts of time before using them up in physical processes of production. Similarly, households may hold consumption goods in stock for varying amounts of time before using them for the satisfaction of their needs or wants. Few goods are so perishable that they have to be used immediately. For example, most foodstuffs need not be eaten until some time after they have been acquired.

18. In the case of services, however, it may be difficult to draw a distinction between acquisition and use as the recipients of most services automatically start to benefit from them from the moment they are delivered without the need for further action on their part. Moreover, the benefits from some services, such as health or education, may be derived continuously over a long period of time and it may be difficult to determine when, if ever, they are finally used up.

B.3.1 Durable versus non-durable goods

19. In the case of goods, the distinction between acquisition and use is analytically important. It underlies the distinction between durable and non-durable goods which is extensively used in economic analysis. In fact, the distinction between durable and non-durable goods is not based on physical durability as such but on whether the goods can be *used once* only for purposes of production or consumption or whether they can be *used repeatedly*, or *continuously*. For example, coal is a highly durable good in a physical sense, but it can be burnt only once. A *durable good* may therefore be defined as one which may be used *repeatedly*, or *continuously*, for purposes of consumption or production *over a period of more than a year*, assuming a normal or average rate of physical usage. In the case of production activities, the distinction between durable and non-durable goods plays a critical role in the System. *Capital goods* may in fact be defined as the durable goods which producers use in production. *Gross fixed capital formation* then consists essentially of the value of the expenditures on capital goods as just defined. Moreover, *capital consumption* may be described in general terms as a measure of the value of the capital goods used up in processes of production during the accounting period, although this is not intended as a precise definition of this theoretically complex concept.

B.3.2 Consumption as an activity

20. The System does not attempt to measure consumption as an activity in the way in which it measures the inputs and outputs associated with production processes. The activity of consumption consists of the *use* of goods and services for the satisfaction of human needs or wants. A consumption function which expresses utility as a function of the *quantities* of goods and services consumed describes the use of those goods and services and not expenditures or acquisitions. In order to measure consumption as an activity it would be necessary to adopt similar accounting procedures to those used in a production account, where a clear distinction is drawn between purchases or sales of goods or services, whether durable or non-durable, and the corresponding inputs and outputs.

21. In order to measure household consumption as an activity it would be necessary to estimate the actual use of non-durable goods and services - i.e., expenditures plus change in stocks - and the actual use of durable goods - i.e., the consumption of durable goods (the analogue of the consumption of fixed capital). Because the System does not recognize household consumption as an activity it does not require changes in the stocks of non-durable goods held by households to be recorded. However, in certain situations, changes in stocks of non-durable goods held by household (foodstuffs, fuels, clothing, etc.) ought not be ignored when analysing consumer behaviour or welfare: for example, stock piling may occur in anticipation of future scarcities while important reductions in stocks may occur in response to prolonged shortages.

22. In practice, the System measures household consumption *only by expenditures and acquisitions*. This means that the only way in which to recognize the repeated use of durable by households is to extend the production boundary by postulating that the durable are gradually used up in hypothetical *production* processes whose outputs consist of somewhat nebulous "services". These "services" can then be purchased, or acquired, by households over a succession of time periods. When analysing consumer behaviour, however, it is much simpler to accept that durable may in fact be used by households for purposes of consumption, not production; that is, to recognize the activity of consumption as such.

C. FINAL CONSUMPTION AND THE MAIN CONSUMPTION AGGREGATES

C.1 Consumption goods and services

23. A consumption good or service is defined as a good or service which is used for the direct satisfaction of human needs or wants.

C.2 Individual and collective consumption

24. An individual consumption good or service is one which is acquired by an individual household and which may be used exclusively by that household.

25. A collective consumption service is a service which is provided to the community as a whole, or to a particular section of the community, and which is deemed to be acquired and used by all members of the community, or the section of the community, simultaneously. A collective service corresponds to the concept of a "public good" as that term is generally understood in economics, although so-called public "goods" consist of services in practice. By their nature, collective services cannot be sold to individual households on the market. They have to be financed by government units or NPIs out of taxation or other sources. The differences between individual and collective consumption goods and services are explained in more detail in a later section.

C.3 The main consumption aggregates and their interrelationships

26. All the main consumption aggregates of the System, whether consumption expenditures or actual consumption, may be derived from data on consumption expenditures. The interrelationships between the various aggregates are explained in the following paragraphs.

C.3.1 The expenditure aggregates

(1) Total consumption expenditures by households proper

These consist of the total expenditures, both actual and imputed, made by households proper for the purpose of acquiring individual consumption goods and services.

(2) Total consumption expenditures of PNPIs serving households

These consist of the total expenditures, both actual and imputed, made by PNPIs on both individual consumption goods and services and collective consumption services. They may be divided into:

(2.1) Expenditures by PNPIs serving households on individual consumption goods and services

(2.2) Expenditures by PNPIs serving households on collective consumption services

It should be noted that total household consumption expenditure, defined as the total expenditure on both individual and collective consumption expenditures made by all the institutional units which make up the household sector (i.e. households proper plus PNPIs serving households), is equal to the sum of (1) and (2) as just defined.

(3) Total government consumption expenditures

27. These consist of the total expenditures, both actual and imputed, made by general government on both individual consumption goods and services and collective consumption services. They may be divided into:

(3.1) Government expenditures on individual consumption goods and services

(3.2) Government expenditures on collective consumption services

28. The interrelationships between the various aggregates are summarized in the following table, using the numerical codes for the various aggregates as just defined.

	Expenditures on consumption goods and services made by:			
Expenditures in respect of:	Households proper	PNPIs serving households	General government	Total
Individual goods or services acquired by households	1	2.1	3.1	I
Collective consumption services	-	2.2	3.2	II
Total	1	2	3	

C.3.2 The consumption aggregates

D. TOTAL HOUSEHOLD ACTUAL CONSUMPTION

29. This consists of the value of all the individual consumption goods and services actually acquired by households. It has three components:

(1) the value of expenditures by households proper on individual consumption goods and services;

(2.1) the value of expenditures by PNPIs serving households on individual consumption goods and services which they transfer to households;

(3.1) the value of expenditures by government units and social security funds on individual consumption goods and services which they transfer to households.

D.1 Total collective consumption

30. This consists of all the collective consumption services provided to the community as a whole, or to particular sections, of the community, by general government or by PNPIs serving households.

Total final consumption

31. Total final consumption can be viewed from two angles. It may be defined *either* as:

> the total of all expenditures on individual consumption goods or individual services plus expenditures on collective consumption services incurred by households, general government or PNPIs serving households; i.e. the sum of (1) + (2) + (3) in the table, the total value of the actual consumption of goods or services by individual households plus the consumption of collective services by the community or sections of the community; i.e. the sum of (I) + (II) in the table.

32. The coverage of the goods and services is the same under either approach. In order to ensure the values of the two aggregates are the same, goods and services which may be acquired by households without payment must always be valued at the same actual or imputed prices at which they are valued in the expenditure aggregates.

E. HOUSEHOLD CONSUMPTION EXPENDITURES

33. This section is concerned with households proper: that is, the institutional units which make up the subsector "resident households excluding non-profit institutions serving households". The consumption expenditures made by households proper may be defined as the actual or imputed expenditures incurred by households on goods or services (excluding dwellings) which they use for the direct satisfaction of the needs or wants of their members. The purpose of this section is to explain the treatment of certain types of expenditures which lie on the borderline between consumption expenditures and other expenditures or whose treatment requires clarification for other reasons.

E.1 Expenditures by households containing unincorporated enterprises

34. When a household contains one or more persons who own an unincorporated enterprise, it is important to try to exclude from household consumption expenditures all expenditures incurred for business purposes. This may not be easy in practice when the same good or service (for example, electricity or other fuels) may be used equally well for business purposes or for final consumption. It is thus not possible to identify business expenditures simply on the basis of the type of good or service purchased. Particular care needs to be exercised in the case of farmers, including subsistence farmers, where goods which have been purchased, or produced on own account, may be used either for household final consumption or for intermediate consumption on the farm - for example, corn or potatoes which may be consumed by members of the households, fed to animals or used as seeds for future crops.

35. Care is also needed with purchases of consumer durable such as vehicles, furniture, or electrical or electronic equipment which are to be classified as gross fixed capital formation by the enterprise when purchased for business purposes but as consumption expenditures when purchased for the personal use of household members. While the nature of the distinction may be clear in principle, it is often blurred in practice, especially if the owner of the business intends to use a durable good such as a vehicle partly for business purposes and partly for personal benefit.

36. When durable are purchased for business purposes, the decline in the value of such durable as a result of their use within the business should be recorded under its capital consumption. However, if such durable are used partly for personal benefit by members of the household, estimates of that part of the decline in their value due to their use for personal benefit should not be recorded under household consumption expenditures because household consumption of durable consists of the value of purchases of durable and not the value of their use.

E.2 Imputed expenditures

37. The imputed expenditures included in household consumption expenditures are those imputed expenditures for which the costs of consuming the goods or services in question must be attributed to the households themselves and not to some third party such as an employer or a social security fund. In practice, there are three main categories of imputed consumption expenditures incurred by households in respect of:

(1) goods and services provided as remuneration in kind by employers to their employees;

(2) goods and services produced by unincorporated enterprises and consumed by members of the same household as the owner of the enterprise;

(3) the services which financial intermediaries provide to households for which no explicit charges are made.

E.2.1 Imputed expenditures on goods and services provided as remuneration in kind

38. When an employer provides goods or services as remuneration for work done by employees, two separate imputations are made in the accounts:

(a) the employer is deemed to pay wages or salaries equal in monetary value to the value of the goods or services provided;

(b) the employee is deemed to spend the whole of the imputed wage or salary on the goods or services provided.

39. An imputed wage or salary constitutes a payment for work done by the employee. The imputed wage or salary belongs to the employee and the goods or services which are purchased out of it constitute, expenditure by the employee, and not the employer. Goods and services provided as remuneration in kind are therefore recorded under imputed household consumption expenditures.

40. A distinction has to be made between goods and services which employers provide as remuneration in kind which their employees use in their own time for the direct satisfaction of their personal needs or wants and other goods or services which employers are obliged to furnish to their employees in order to make it possible for them to carry out their work. Goods or services which are needed at work purposes have to be treated as intermediate consumption by the employer. The nature of the distinction is explained further in the section on "compensation of employees" in Chapter [ ], but it is useful here to recapitulate the kinds of goods and services which are typically remuneration in kind, and hence included in household consumption expenditures, and the kinds of goods and services which typically constitute intermediate consumption by the employer.

41. Remuneration in kind includes:

(a) the provision of meals and drinks, including those consumed when travelling on business;

(b) the provision of housing of a type which can be used by all the members of the family to which the employee belongs;

(c) the provision of uniforms or other forms of special clothing which employees choose to wear frequently outside of the work place as well as at work;

(d) the provision of miscellaneous household consumption goods, including durable and vehicles, for the personal use of employees;

(e) the provision of miscellaneous services such as transportation to and from work, creches for the children of employees, general medical services for employees and their families, sports facilities for employees and their families, etc.

42. On the other hand, remuneration in kind excludes the following kinds of goods and services provided by employers which must therefore be excluded from imputed household consumption expenditures:

(i) tools or equipment used only or mainly, at work;

(ii) special clothing or footwear, including uniforms, which are worn only at work or travelling to and from work;

(iii) accommodation of a kind which is not useable by other family members, such as barracks, huts in work compounds, etc.;

(iv) special meals or drinks necessitated by exceptional working conditions;

(v) transportation and hotel services used by employees while travelling on business;

(vi) washrooms, showers, etc. necessitated by the nature of the work;

(vii) first aid facilities or medical checks necessitated by the nature of the work.

E.2.2 Imputed expenditures on goods and services produced and consumed by households

43. These consist of the imputed expenditures on consumption goods and services which are produced as outputs by unincorporated enterprises belonging to households and which are retained by their owners for consumption by themselves or other members of their household. It should be remembered, however, that the production of services for own consumption within the same household falls outside the production boundary of the System, with the exception of housing services produced by owner-occupiers and services produced by paid domestic staff.

44. The main types of goods and services which are produced and consumed by the same household, as an institutional unit, and for which household expenditures must be imputed, are as follows:

(a) food or other agricultural products produced for own consumption by subsistence farmers, other farmers or other households;

(b) other kinds of goods produced by unincorporated enterprises belonging to households which are consumed by members of those households;

(c) housing services produced for own consumption by owners of dwellings; the treatment of this item is discussed more fully in a separate section below;

(d) domestic or other services produced for own consumption by households which employ paid staff for this purpose.

Values are imputed for the goods and services listed above on the basis of current basic prices, except for the domestic services of paid staff which are valued by the compensation of employees paid.

E.2.3 Imputed expenditures on services provided by financial intermediaries

45. These consist of the imputed expenditures which households incur on services provided by financial intermediaries for which no explicit charges are made. There are two different kinds of services for which expenditures are imputed, namely the services provided by financial intermediaries other than financial corporations and pension funds and the services provided by insurance corporations and pension funds.

E.2.3.1 Imputed expenditures on the services provided by financial intermediaries other than insurance corporations and pension funds

46. These financial intermediaries, which include most corporations describing themselves as "banks" usually do not charge households (or their other clients) explicitly for most of the services which they provide. Instead, the nominal rates of interest which they charge households on advances, overdrafts, mortgages or other loans are higher than the rates of interest which they themselves pay on the deposits which households hold with them. The differences between the various rates of interest charged and paid constitute an implicit, or indirect method, of charging customers for services rendered instead of charging, or paying, the same rate of interest on all loans and deposits and demanding separate payments for services rendered.

47. The values of the expenditures which households make on such services can therefore be estimated by choosing an appropriate reference rate of interest and calculating how much depositors or borrowers would have to pay in explicit charges if the reference rate were to be applied to all depositors or borrowers. When there is a properly organized money market the most appropriate reference rate to utilize is the inter-bank rate: otherwise, the central bank lending rate can be used.

- For depositors, the imputed expenditures by households are equal to the amounts of interest they would receive if they were paid the reference rate less the amount of interest (if any) which they actually receive. It is common for commercial banks to pay no interest on current or checking accounts.
- For borrowers, the imputed expenditures are equal to the amounts of interest which they actually pay on their overdrafts, mortgages or other borrowing less the amounts they would pay if they were charged the reference rate.

48. It follows that the amounts of interest which households are recorded as receiving from, or paying to, financial intermediaries in the use of income account is equal to the amounts that would be received or paid if the reference rate were to be applied universally to all household deposits and borrowing.

49. Two implications of this method of calculating the imputed expenditures on the services of financial intermediaries (other than insurance corporation and pension funds) may be noted:

(1) In general, the imputed expenditure is not equal to the difference between the amounts of interest actually paid and received by households; the equality holds only in the special case in which the value of the deposits held by households equals the value loans they receive;

(2) Household savings cannot be changed by the imputation as the value of the imputed expenditure on services is matched by an equal reduction in the amount of net interest which households would otherwise be recorded as paying.

E.2.3.2 Imputed expenditures on the services provided by insurance corporations and pension funds

50. Only relatively small amounts of the premiums paid by households on insurance policies constitute payments for the services rendered by insurance enterprises in arranging the financial protection or security which insurance is intended to provide. Most of the premiums paid on accident insurance policies constitute transfers, while most of the premiums paid on life and endowment insurance policies constitute the acquisition of financial assets by households. The premiums received by insurance enterprises are not their only receipts, however, as they derive considerable property income from the investment of their technical reserve and this income has to be taken into account when estimating the amounts of the service charges. The way in which the service charges are estimated is explained in Chapter [ ].

51. The service charges incurred by households in respect of the management of pension funds are assumed to be equal to the administrative expenses of managing the funds.

52. Household consumption expenditures on insurance or pensions include only the expenditures which households are estimated, or assumed, to incur in respect of the services provided to households by insurance enterprises or pension funds. When the total service charges of insurance enterprises or pension funds have to be allocated among different sectors, subsectors or institutional units they may be distributed in proportion to the premiums or pension contributions paid.

E.3 Housing services, repairs and decoration

E.3.1 Repairs and decoration by owner-occupiers

53. Owner-occupiers, that is persons who own the dwellings in which they live, are treated in the System as owners of unincorporated enterprises which produce housing services which are consumed by the household to which the owner belongs. The occupier is deemed to pay a rental to himself as owner of the enterprise equal to the rent that would be paid on the market for accommodation of the same size, quality and type.

54. Expenditures which the occupier, in his capacity as owner of an unincorporated enterprise, incurs on substantial repairs, maintenance and decoration of the dwelling should not be treated as part of household consumption expenditures but as expenditures on intermediate inputs incurred by the enterprise in the production of housing services. These expenditures may consist either of payments for services provided by professional builders or decorators or purchases of materials for "do-it-yourself" repairs and decoration. In the latter case, small repairs and decoration of a kind which are carried out by tenants as well as owners may be treated as the own-account production of household services which falls outside the production boundary of the System. Purchases of materials for small repairs or interior decoration should therefore be treated as final consumption expenditures.

E.3.2 Major renovations or extensions to dwellings

55. As explained in paragraphs [ ], expenditures major renovations or extensions to dwellings are not classed as repairs and maintenance and are therefore always excluded from consumption. They are treated as gross fixed capital formation on the part of the owners of those dwellings.

E.3.3 The repair and maintenance of durable

56. Expenditures on the repair and maintenance of household durable, including vehicles, are treated in the same way as small repairs to dwellings. They constitute final consumption expenditures whether the repairs and maintenance are carried out by specialist producers or by members of the household as "do-it-yourself" activities. In the latter case, only the values of the materials purchased should be included in household consumption expenditures.

E.4 Taxes, licences and fees

57. The items which are covered by household consumption expenditures must consist of goods or services produced as outputs from processes of production. Households make payments to government units to obtain various kinds of licences, permits, certificates, passports, etc. and in some cases it is not clear whether the government units actually provide real services in return, such as testing or inspection, or whether the payments are *de facto* taxes - i.e., compulsory

unrequited transfers. Even when some kind of service is provided in return, the amount of service provided for a given type of licence or permit may vary considerably from one country to another. In consequence, it has not always been possible to reach agreement at an international level about which type of payments should be treated as the payment of fees for services rendered and which should be treated as taxes. As the amounts involved are small, it has been decided to settle the treatment of certain borderline cases on the basis of the treatments most commonly adopted by countries. The following convention has therefore been adopted: payments by households for licences to own vehicles, boats or aircraft and also licences to hunt, shoot or fish are treated as taxes, while payments for all other kinds of regulatory licences, permits, certificates, passports, etc., are treated as purchases of services and included in household consumption expenditures.

E.5 The timing and valuation of household consumption expenditures

E.5.1 Timing

58. In accordance with the general principles adopted in the System, expenditures should be recorded when the amounts involved become due for payment. This implies that the purchase of a good is to be recorded at the time its ownership changes while the purchase of a service is recorded when the production of the service is completed.

59. Expenditures on a good under a hire purchase agreement (and also under a financial lease) should be recorded at the time the good is delivered even though there is no legal change of ownership at this point. De facto, the purchaser exercises the rights and responsibilities of ownership from the time the good is delivered under a hire purchase agreement, financial lease or similar method of financing. A change of ownership is therefore imputed at the time of delivery.

E.5.2 Valuation

60. Household expenditures are recorded at market prices: that is, the purchasers' prices paid by households including any taxes on products which may be levied at the time of purchase. The purchaser's price of a good is the price paid to take delivery of the good at the location specified by the purchaser. It includes any delivery charges incurred by the purchaser which are not already included in the seller's invoice price.

61. Different households may pay different market prices for identical products because of market imperfections. Price differences may persist because households may not consider it worth while to seek out the outlets selling at the lowest prices. They may not even be aware that price differences exist, or they may have imperfect information because the costs of searching for the retail outlets selling at the lowest prices may be too great. Another reason for the persistence of price differences is that many service producers deliberately practice price discrimination by charging different households different prices for identical services - e.g., by charging lower prices to pensioners or people with low incomes. As services cannot be retraded, price discrimination is extremely common, or even prevalent, among service producers. Household expenditures are nevertheless recorded at the prices actually paid, even though this may mean that goods and services may not be valued uniformly.

62. Apparent price differences between the same goods or services are often due to differences in quality or in the terms of conditions of sale. For example, lower prices are often charged for bulk purchases of goods or off-peak purchases of services. Such expenditures must, of course, be recorded at the prices actually paid; that is, after deducting from the standard prices or charges any discounts for bulk or off-peak purchases.

E.5.2.1 Valuation of purchases on credit

63. The market, or purchaser's, price does not include any interest or service charges which may be added when the seller arranges for credit to be provided to the purchaser. Similarly, the purchaser's price does not include any extra charges which may be incurred as a result of failing to pay within the period stated at the time the purchases were made, such charges being effectively interest payments on the credit extended by the seller.

E.6 Expenditures by non-resident households

64. Resident households make expenditures while travelling abroad, while non-resident households also make expenditures inside the economic territory of a country. Total household consumption expenditures in the System is defined as the total consumption expenditure incurred by resident households, whether that expenditure is incurred within the economic territory or abroad.

65. In order to calculate total household consumption expenditures in practice it may be convenient to start by calculating the total expenditure by all households, whether resident or not, within the economic territory and to adjust this figure by adding expenditures by residents abroad and subtracting expenditures by non-residents within the economy territory. However, while the total expenditures by all households within the economic territory may be used for calculation in this way, it is not an aggregate which is recognized within the System.

F. ALTERNATIVE MEASURES OF HOUSEHOLD CONSUMPTION

F.1 Household actual consumption

66. Household actual consumption consists of the individual goods or services (except dwellings) acquired by households by purchase or transfer for the direct satisfaction of the needs or wants of their members. The value of household actual consumption may be obtained as the sum of three components:

(a) the value of households' expenditures on individual consumption goods or services;

(b) the value of the expenditures incurred by NPIs on individual consumption goods or services which they transfer to households;

(c) the value of the expenditures incurred by government units on individual consumption goods or services which they transfer to households.

67. When actual consumption is recorded instead of consumption expenditures, the values of the individual consumption goods or services which NPIs, government units or social security funds provide free to households must also be recorded under current transfers in kind in the income accounts. The values of these

current transfers in kind are equal to the actual of imputed values of the goods or services supplied to households less the amounts of any expenditures may be incurred by households when small, or nominal, prices are charged instead of providing the goods or services completely free.

68. Three main types of current transfers in kind are distinguished in the System:

(1) Social security benefits in kind;

(2) Social assistance grants in kind;

(3) Individual consumption goods or services supplied directly to households at no charge, or almost no charge, by non-market producers owned by general government or non-profit institutions.

69. The individual consumption goods and services provided to households by non-market producers owned by general government on NPIs consist mostly of education and health services provided by schools, colleges, universities, clinics, hospitals and similar bodies. The precise coverage of these goods and services is explained in a later section.

70. The term "consumption" on its own can be ambiguous and misleading in economics as sometimes it refers to consumption expenditures, sometimes it refers to acquisitions of consumption goods and services while sometimes it refers to the physical use of the goods and services for the direct satisfaction of human needs or wants. By distinguishing clearly between consumption expenditures and actual consumption, such ambiguity can be avoided. When consumption is recorded on an expenditure basis, the purpose is to identify the institutional units which incur the expenditures and hence control and determine the amounts of such expenditures. When consumption is recorded on an acquisitions basis, the purpose is to identify the units which actually acquire the goods and services and benefit from their use, either immediately or subsequently.

71. The main consequences of switching the recording of household consumption from an expenditure basis to an acquisitions basis may be summarised as follows:

(1) the values of the individual goods and services provided to households by general government or NPIs are recorded in the accounts of general government of NPIs as payments of current transfers in kind instead of expenditures on goods and services: government income and saving is the same, whichever method of recording is adopted;

(2) the values of the individual goods and services provided to households by general government and NPIs are recorded by households as receipts of current transfers in kind and also as components of actual consumption: household income and outlays are both increased by equal amounts, leaving saving unchanged.

F.2 Household durable

72. For certain types of analysis of consumer behaviour it may be preferable to treat the "consumption" of consumer durable as being measured by the usage, or using up, of durable by households instead of by households' expenditures on, or net acquisitions of, consumer durable. The distinction between acquisition and use is irrelevant for services, but it can be important for goods. By definition,

consumer durable are goods which may be used continuously, or repeatedly, by households for the satisfaction of their needs or wants over two or more accounting periods, and usually over several years in practice.

73. As information about the usage of consumer durable may be needed for various analytical purposes, it is proposed to record data on the stocks of durable goods held by households as memorandum items in the balance sheets of the System. Stocks of consumer durable may be estimated by using the same perpetual inventory method which is used to estimate stock of durable producer goods. Estimates of the "consumption of consumer durable may similarly be compiled, by using the same methodology as for the consumption of fixed capital. Analysts have therefore the option of using the consumption of consumer durable in place of expenditures on durable for certain types of analysis.

74. An alternative possibility is to reclassify consumer durable as producer durable i.e. as capital goods. This implies that households are incapable of consuming durable directly but have to engage in processes in production in which they use durable goods to produce "services" which they consume instead. For example, households are not allowed to consume automobiles, or boats, directly but have to use them to produce "transportation services" for own consumption. A disadvantage with this approach is that the ensuing processes of production would have to be properly recorded in the accounts in the same way as the production of housing services. For example, expenditures by households on gasoline for automobiles or electricity for refrigerators should in principle be reclassified as intermediate expenditures incurred in the production of transportation or refrigeration "services". Attempting to push the boundary of production backwards in this way is tantamount to denying the existence of consumption as a household activity in itself. Households derive satisfaction from the use of goods as well as services. Many people actually enjoy driving automobiles and not everyone prefers to be driven by a chauffeur.

CONSUMPTION EXPENDITURES OF GENERAL GOVERNMENT AND OF PNPIs SERVING HOUSEHOLDS

75. The treatment of the final consumption expenditures incurred by general government and PNPIs serving households is essentially the same so that it is convenient to take them together. Expenditures on a wide range of consumption goods and services are incurred by general government or by PNPIs, either because of the special characteristics of certain kinds of collective services which cannot easily be provided on a market basis or as a result of deliberate social or political choice. These expenditures are financed principally out of taxation or other compulsory levies in the case of government or out of subscriptions, contributions or donations in the case of PNPIs serving households.

76. There are several ways in which the consumption expenditures of general government and NPIs can be classified: in particular,

(a) according to whether the goods or services have been produced by market or non-market producers;

(b) whether the expenditures are on collective services or individual goods or services;

(c) by type of good or service as classified by the CPC;

(d) by function or purpose as classified in COFOG.

77. It is necessary to explain how the first two of these breakdowns interact in the System.

F.3 Expenditures on the outputs of market and non-market producers

78. As expenditures on the outputs of non-market producers constitute the bulk of final consumption expenditures by governments and PNPIs it is appropriate to consider them first.

F.3.1 Expenditures on the outputs of non-market producers

79. At a conceptual level, it is important to distinguish clearly between expenditures made by general government or PNPIs on the outputs of non-market producers - i.e. the goods, individual or collective services they actually produce - and the intermediate expenditures and other costs which non-market producers owned by general government or NPIs incur in the course of producing those goods or services. The two sets of expenditures may perhaps be confused with each other because the outputs of non-market producers are valued on the basis of their costs of production.

80. Every process of production involves the transformation of inputs into outputs, and the goods or services produced as outputs are evidently not the same as those used up, or transformed, as intermediate inputs.

81. The distinction between the inputs to, and outputs from, non-market processes of production needs to be emphasized because the final consumption expenditures made by general government or PNPIs must be incurred on the outputs from those processes. They are also imputed expenditures because government units or PNPIs are, in effect, deemed to be purchasing goods and services from non-market producers which they themselves own. The values of these imputed expenditures are equal to the imputed values of the total outputs produced by the non-market producers less the values of any receipts from sales. These receipts may be derived from sales of some goods or services at prices well below their costs of production or from the sales of incidental goods or services at prices equal to, or greater than, their costs of production.

82. The intermediate expenditures which non-market producers incur usually consist of actual expenditures on the market. The kinds of expenditures which may be involved are described in Chapter ... above. While these expenditures enter directly into the calculation of the imputed values of the outputs of non-market producers, they are, of course, not to be treated as if they were themselves final expenditures.

F.3.2 Expenditures on market goods or services

83. Government units and NPIs also purchase consumption goods and services produced by market-producers which they pass on to households without further processing. Expenditures of this kind are to be included directly in the final consumption expenditures of general government and PNPs alongside their imputed expenditures on non-market goods and services.

84. In order to be included directly in final consumption expenditures, it is clear that the goods or services in question must not be subjected to any further processing: that is, they must not be used as inputs into the processes of

production which are carried out by non-market producers. The role of the government unit or NPI is confined to purchasing the goods or services from market producers and then distributing them to households as transfers in kind. The values of the goods or services distributed in this way will be recorded either under Social Security benefits in kind or social assistance grants in kind.

85. Transfers in kind, rather than in cash, are an important mechanism by which governments, or PNPIs, are able to ensure that certain categories of goods or services are delivered directly to certain categories of household. In practice, the transfers tend to consist of services such as health, education, housing, transportation, etc. which can be delivered to households by either market or non-market producers. When they are provided by market producers, the producers may be paid directly by the government units or NPIs concerned, or they may be paid by the households themselves who are then reimbursed by government units or NPIs: either way, the amounts paid or reimbursed are included directly in the final consumption expenditures of government units or NPIs. Transfers in kind may utilize the outputs of market producers just as easily as non-market producers. Thus, the balance between market and non-market production is not determined by the extent to which governments choose to provide transfers in kind but by other political or economic considerations.

F.4 Individual and collective consumption

86. The consumption expenditures incurred by government and PNPIs serving households have to be divided into expenditures on individual consumption goods and services and expenditures on collective consumption services. The purpose of this distinction is to separate expenditures incurred for the benefit of individual households from those incurred for the benefit of the community as a whole.

F.4.1 Individual goods and services

87. Individual consumption goods and services are essentially "private", as distinct from "public" goods. They have the following characteristics:

(1) It must be possible to observe and record the acquisition of the good or service by an individual household or member thereof and also the time at which it took place;

(2) The household must have agreed to the provision of the good or service and take whatever action is necessary to make it possible, for example, by attending a school or clinic;

(3) The good or service must be such that its acquisition by one household or person, or possibly small, restricted groups of households or persons, precludes its acquisition or use by other households or persons.

88. The reason for including the reference to small, restricted groups of persons in the definition of individual goods or services is that certain services are provided to small groups of people simultaneously: for example, several persons may travel in the same bus, train, ship or plane to attend the same class, lecture, concert or theatre performance. However, these are still essentially individual services if they are restricted to a limited number of individuals who can be readily identified. Other members of the community are excluded from the consumption of the services and derive no benefit from them.

89. From a welfare point of view, the important characteristic of an individual good or service is that its provision to one household, person or group of persons brings no (or very little) benefit to the rest of the community. While the provision of certain individual health or education services (for example, vaccination or immunization) may bring some external benefits to the rest of the community, in general the principal beneficiaries are the individuals concerned. Thus, when a government or NPI incurs expenditures on the provision of individual consumption goods or services, it must decide not only how much to spend in total but how to allocate, or distribute, the goods or services among individual members of the community. From the point of view of economic and social policy, the way in which they are distributed may be as important as the total amount spent.

F.4.2 Collective services

90. Most goods are individual in the sense used here because the same good cannot be acquired and used by every member of the community simultaneously. On the other hand, certain kinds of services can be provided collectively to the community as a whole as already indicated. The characteristics of collective services may be summarized as follows:

(1) Collective services can be provided simultaneously to every member of the community. The consumption of such services is usually passive and does not require the explicit agreement or active participation of all the individuals concerned.

(2) The provision of a collective service to one individual, or group of individuals, does not reduce the amount available to the rest of the community. There is no rivalry in consumption.

91. The collective services provided by government consists mostly of the provision of security and defence, the maintenance of law and order, legislation and regulation, the maintenance of public health, the protection of the environment, research and development, and so on. All members of the community tend to benefit from such services. As the individual usage of collective services cannot be recorded, individuals cannot be charged according to their usage or the benefits they derive. There is market failure and collective services must be financed out of taxation or other government revenues.

92. Collective services provided by NPIs tend to be confined to certain groups within the community rather than the community as a whole. NPIs are generally concerned with protecting the interests or welfare of certain sections of the community or providing recreational, sporting or cultural facilities which households or persons cannot otherwise easily obtain for themselves acting individually.

F.4.3 The borderline between individual and collective services

93. Expenditures incurred at a national level in connection with individual services such as health and education are to be treated as collective when they are concerned with the formulation and administration of government policy, the setting and enforcement of public standards, the regulation, licensing or supervision of producers, and so on. For example, the expenditures incurred by Ministries of Health or Education at a national level are to be included in collective consumption expenditures as they are concerned with general matters of policy,

standards and regulation. On the other hand, any overhead expenses connected with the administration or functioning of a group of hospitals, schools, colleges or similar institutions are to be included in individual expenditures. For example, if a group of private hospitals has a central unit which provides certain common services such as purchasing, laboratories, ambulances, or other facilities, the costs of these common services would be included in the prices charged to patients. The same principle must be followed when the hospitals are non-market producers: all the costs which are associated with the provision of to particular individuals, including those of any central units providing common services, should be included in the value of expenditures on individual services.

F.4.4 The classification of individual and collective government expenditures

94. In practice, government expenditures on individual final consumption services may be distinguished from collective services by referring to COFOG, the Classification of Final Expenditures of Government by Purpose. By convention, all government final consumption expenditures, except for those on general administration, regulation, research, etc., under each of the following headings should be treated as expenditures on individual services:

04	Education
05	Health
06	Social Security and Welfare
08.01	Sport and recreation
08.02	Culture

In addition, expenditures under the following subheadings should also be treated as individual when they are important:

07.11	part of the provision of housing
07.31	part of the collection of household refuse
12.12	part of the operation of transport system.

A similar classification can be used for the consumption expenditure of NPIs.

F.4.5 Collective services to enterprises

95. When government expenditures benefit enterprises as much as households, they should always be treated as collective. The main example is probably expenditures incurred on the cleaning, maintenance and repair of public roads, bridges, tunnels, etc. including the provision of street lighting. In principle, these are individual services whose consumption can be monitored: for this reason, they are frequently provided on a market basis by charging tolls on road usage. However, it is not feasible to separate the services provided free to households from those provided free to enterprises and all these expenditures should be treated as collective final expenditures.

96. Enterprises also benefit from a number of genuinely collective services such as the research and development undertaken by non-market producers, the provision of security by the police, fire services and so on. The usage of such collective services by individual enterprises cannot be recorded, so that expenditures on such service have to be treated as final expenditures and not as intermediate consumption expenditures.

G. ACTUAL CONSUMPTION OF GENERAL GOVERNMENT AND OF NPIs SERVING HOUSEHOLDS

97. The actual consumption of general government and of NPIs serving households consists of the services which are consumed collectively by the community as a whole, or by sections of the community, and which are paid for by general government or NPIs serving households. Most, or all, of these services are produced by non-market producers, in which case they are valued at their costs of their production. The value of the actual consumption of general government is equal to the total final consumption expenditures of general government less the value of expenditures on individual goods and services provided by general government to households. The value of the actual consumption of PNPIs serving households may be obtained similarly.

98. When the use of income accounts for general government record actual consumption rather than consumption expenditures, the values of the individual goods and services provided by general government to households are recorded under current transfers in kind. Government saving is thus the same whether actual consumption or consumption are recorded.

99. The identification and measurement of government actual consumption serves two main analytical or policy purposes:

(1) Collective services as defined in the System are similar to "public goods" as defined in public finance and economic theory. While it may be technically possible to charge individual consumers of certain collective services according to their usage or benefits they derive, the transactions costs of doing so are usually prohibitively high, leading to market failure. This provides an economic, rather than political, rationale for government intervention as the provision of such services has to be financed out of taxation or other government revenues. It does not follow, however, that government units must necessarily produce such services themselves and in some cases (e.g. the cleaning and maintenance of public roads) the services may be purchased from market producers.

(2) Collective services do not provide a mechanism for redistributing resources among individual households within an economy. As redistribution may be one of the main economic objectives of government, it is useful to separate the collective services which do not serve this purpose from the individual goods and services which are ultimately channelled to individual households, even though paid for by government.

H. GROSS CAPITAL FORMATION

H.1 Introduction

100. Gross capital formation consists of actual or imputed expenditures undertaken by producers which add to the stock of durable or non-durable goods or other productive assets which they hold. It covers a heterogenous group of expenditures which are itemized below.

101. A capital good may be defined as durable good used in production: that is, it is a good which may be used repeatedly or continuously in a process of production over a number of years. Some durable goods, such as furniture, automobiles or other transport equipment, may be used either by producers or by households for the direct satisfaction of their needs or wants, so that the same good may switch from

being a capital good to a consumer durable by a change of use. For example, existing durable goods, such as automobiles, sold by enterprises to household are treated as negative gross capital formation and positive household consumption expenditure.

102. Gross capital formation has two distinct components, namely:

gross fixed capital formation;

changes in stocks held by producers.

From an economic point of view, changes in stocks are quite different from gross fixed capital formation. First, the stocks may consist of any kind of goods whatsoever. Second, holding stocks of intermediate goods or outputs does not in itself enhance the productive capacity of an enterprise: the need to hold stocks arises because flows of purchases or sales by enterprises do not exactly match their flows of production over time. It should be noted, however, that the value of the stocks of inputs and outputs held by enterprises is often as large as the value of the capital goods which they hold.

103. Gross fixed capital formation consists of expenditures on capital goods or other specified expenditures undertaken by producers of goods or services in order to maintain or increase their productive capacity in the future. Gross fixed capital formation has three main components:

(1) expenditures on new or existing capital goods;

(2) expenditures designed to improve, enlarge or otherwise enhance the productive capacity of existing capital goods and land;

(3) other expenditures designed to enhance productive potential or create new production possibilities in the future.

104. The coverage of the third category is not so obvious compared to the first two. The System includes only expenditures on research and development by enterprises in their third category although a case can be made for including other types of expenditure, such as expenditures on training employees.

105. The difficulty with the third category of expenditures is that they may not create, or be incorporated in, a discrete asset owned by the enterprise which can be shown in its balance sheet. For example, a highly skilled and trained work-force may be indispensable for certain types of production, but the skills of the employees cannot be recorded as assets in the balance sheet of the employer (except when the employees are under strict contract or otherwise unable to seek employment elsewhere).

H.1.1 Expenditures, acquisitions and uses

106. Gross capital formation is defined in terms of expenditures. Although it would be possible to define a corresponding aggregate in terms of net acquisitions of capital goods or other assets, such as aggregate is not explicitly defined and identified in the System. While capital transfers in kind take place, these are not so important in practice as the current transfers in kind between general government and households so that the concept of actual capital formation is not used in the System.

107. The distinction between expenditures on capital goods and the use of capital goods in production is, however, fundamental in economics and national accounts. Capital consumption is a measure of the decline in value of the capital goods used in production during the accounting period and its measurement is explained in a later section. For goods which may be used over long periods of time, whether capital goods or consumer durable, the value of expenditures and the value of the goods used up may be quite different from each other.

H.2 Gross fixed capital formation

108. As explained there are three main categories of gross fixed capital formation: namely, expenditures on new or existing capital goods, expenditures on improvements to capital goods or land, and other expenditures to enhance productive capacity or create new production possibilities.

H.2.1 Expenditures on new or existing capital goods

109. This component, which is usually the largest component of gross fixed capital formation, consists of the value of the actual or imputed expenditures made by producers on new or existing capital goods. Actual expenditures are valued at purchasers' prices, including all delivery and installation costs, while imputed expenditures on capital goods produced on own account are valued at the costs of producing the goods. Not all the durable goods purchased by producers and used in production are necessarily included in gross fixed capital formation, however, and it is necessary to itemize the exceptions.

H.2.1.1 Durable producer goods which are not capital goods

110. There are two main categories of durable goods used by producers whose purchasers may be excluded from gross fixed capital formation.

H.2.1.1.1 Small, inexpensive tools

111. Expenditures on small, simple and relatively inexpensive tools may be excluded from gross fixed capital formation when such expenditures are very small in comparison with other expenditures on capital goods. The durable goods in question are small portable tools or equipment such as hammers, saws, screw drivers, etc. which are operated manually and which require little or no skill or training on the part of the workers who use them. They may also include very simple battery operated pocket calculators or torches, but not power tools or other equipment which uses mains electricity.

112. When simple tools or equipment form only a very small fraction of the total value of the capital goods used by producers, it may not be worthwile treating expenditures on them as gross fixed capital formation, as this entails including them in the capital stock and calculating capital consumption for them. On the other hand, in countries at low levels of economic development, relatively simple tools and equipment may account for a significant part of the capital stock. In such cases, expenditures on them should be treated as gross fixed capital formation. The exclusion of small tools and equipment is simply a convention which may be adopted on grounds of expediency whenever the costs of treating the items as capital goods are not justified in terms of the analytical benefits derived.

113. Programmable calculators and micro-computers used by producers should always be treated as capital goods. Actual or imputed expenditures on software programmes which enhance the productive capacity of such computers must therefore be treated as gross fixed capital formation.

H.2.1.1.2 Military weapons

114. The second category of durable goods to be excluded from capital goods consists of destructive military weapons such as guns, bombs, missile and rockets and the associated ships, planes and vehicles whose function is to launch or deliver such weapons. The actual use of such weapons in armed conflict or war for the purpose of destroying lives and physical assets is evidently not a process of production.

115. While it is clear that the weapons themselves are not capital goods, it is less clear how other types of military equipment should be treated. The principle adopted in the System is not to treat as capital goods equipment such as tanks, fighter aircraft, bombers, warships, submarines, missile carriers or silos, and so on, whose sole purpose is to deliver such weapons but to treat structures such as airfields, ports or dockyard, which have alternative uses as capital goods. The latter are in fact in continual use even in peacetime, and are often used jointly with civilian producers. Similarly, transport equipment which is used to carry military personnel, such as buses and troop-carrying aircraft or ships, should also be treated as capital goods. The transportation of military personnel is an activity which is identical with the transportation of non-military personnel, and it is appropriate to classify the equipment in the same way in both cases.

116. Durable goods acquired by the military should therefore be treated as capital goods when two conditions are met:

(1) the same kind of good is purchased by civilians for use in production: civilian users do not include internal security forces, such as the police, in this context; and

(2) the military actually utilizes the good in the same way as a civilian producer.

117. Small arms and armoured vehicles, ships and aircraft are also acquired by non-military forces, such as police, customs and immigration forces, and other forces concerned with internal security and the maintenance of law and order. They may also be acquired by commercial security services or by ordinary enterprises which employ their own security staff. It is proposed that all such durable acquired by establishments concerned with internal security should, by convention, be treated as capital goods, even though the same goods may be treated as consumption goods when acquired by the military.

H.2.1.2 Animals treated as capital goods

118. Animals which are not reared primarily for slaughter and meat production are treated as capital goods. Such animals are used in production over several years. They include the following kinds of animals:

- draught animals (horses, oxen, etc.);

- cattle used to produce dairy products;

- sheep, llamas etc. to produce wool;
- breeding stocks;
- animals used for sport or entertainment.

Many animals reared for the above purposes may be eventually slaughtered for meat production, so that it may sometimes be doubtful as to which way to classify certain animals. When there is doubt, it is recommended that they should be treated as capital goods.

119. Gross fixed capital formation in animals is measured by the value of the net changes in the stocks, estimated at basic prices.

H.2.1.3 The timing of expenditures on capital goods

120. Expenditures on new or existing capital goods should be recorded at the time the change of ownership takes place. When goods are purchased in installments or under a financial lease, however, legal ownership of the goods may not change until some time after the goods have actually been used in production: in these cases, the user is deemed to acquire the rights of ownership at the time he takes physical possession of the goods, and the expenditures and gross fixed capital formation are recorded at that point.

121. The production of very large capital goods such as ships, power stations, dams, bridges, tunnels, large office or apartment blocks or other structures often takes several years to complete. However, gross fixed capital formation cannot be recorded until a change of ownership takes place. In the case of large machinery and equipment the change of ownership usually occurs after the machinery or equipment is completed, when the user takes possession of the good, such as an aircraft or ship. However, in the case of large structures for which a contract of sale has been agreed in advance, the change of ownership may be a gradual process and, in practice, the purchaser often takes possession of a large structure in stages, e.g. segments of a road or floors of an office block. Thus, the work-in-progress completed each year on a large construction project for which a contract of sale exists is deemed to be transformed into finished output at the end of each year and to be sold to the purchaser. The gross fixed capital formation is distributed over the different years during which construction takes place with some transfer of ownership being recorded at the end of each year. When the contract of sale calls for regular stage payments these may be used as proxies for the value of the work-in-progress completed each year or accounting period.

122. When there is no contract of sale with a purchaser agreed in advance, the output produced cannot be treated as capital formation until such time as an economic unit takes possession of it for purposes of production. In practice, contractors do not embark on very large scale construction projects without a previous contract, but they may build houses, or manufacture mobile equipment, for which no purchaser has been agreed in advance. In these cases, any completed units which remain unsold have to be treated as forming part of the stocks of output held by the producer. *A fortiori*, any house or capital good which is only partially completed during the accounting period and for which no buyer has been found, has to be treated as work-in-progress.

123. Many enterprises produce machinery, equipment or structures for own use. The output of capital goods produced on own account must be treated as being acquired by the user simultaneously with its production. Thus, the value of gross fixed capital formation in the form of the own account production of capital goods must be equal to the value of the output produced during that period.

H.2.1.4 The valuation of expenditures on capital goods

124. Expenditures on new or existing capital goods should be valued at purchaser's prices including all the expenses incurred in taking possession of the completed capital good at the desired location. In the case of equipment, the purchaser's price includes all delivery and installation charges as well as transportation costs. In the case of structures, it includes all contributory costs such as the costs of site clearance and the fees of architects, surveyors, structural engineers, lawyers, or other professional charges. These fees should not be regarded as a separate, or additional, component of gross fixed capital formation but as an integral part of the total purchaser's price used to value the expenditures on capital goods.

125. Own account capital formation should be valued on the basis of the total costs incurred during the period, including overhead or ancillary costs. In the case of communal construction projects undertaken in villages or other local communities in which the labour is unpaid, the cost of the labour inputs should be estimated using the wages paid for comparable work on the market; similarly, any materials supplied free should be valued at basic prices.

H.2.2 Expenditures on improvements to existing capital goods or land

126. The second major category of gross fixed capital formation consists of the actual or imputed expenditures which the owners of capital goods or land incur on improving, enlarging or otherwise enhancing the productive capacity of those capital goods or land.

H.2.2.1 Improvements to existing capital goods

127. Expenditures which result in significant improvements in the characteristics, performance, capacity or length of life of an existing capital good are treated as gross fixed capital formation. In some cases, it is not easy to distinguish such expenditures from expenditures on ordinary repairs, maintenance or servicing, but the following criteria may be helpful in delineating gross fixed capital formation from repairs and maintenance.

(1) Gross fixed capital formation requires a deliberate investment decision which may be taken at any time, irrespectively of the condition of the capital good in question, whereas ordinary repairs and maintenance are unavoidable current costs which have to be incurred on a regular basis in order to be able to continue using a capital good for the purpose for which it was designed.

(2) In order to qualify as gross fixed capital formation there should be a significant transformation of the capital good which either increases its capacity or enables it to be used for somewhat different purposes from those for which it was originally designed. Repairs and maintenance do not change the characteristics of a capital good. Obviously, extensions to structures such as buildings or roads qualify as gross fixed capital formation, but a major redecoration of the interior of a building may qualify, as also a major refitting of a ship.

128. It can be argued that a major repair which significantly prolongs the life of a capital good beyond its normal service life without changing its characteristics or performance should be treated as gross fixed capital formation. The difficulty with this criterion is that with good repairs and maintenance the working lives of many capital goods can be prolonged indefinitely. Most structures can be maintained in more or less their original state by good repairs and maintenance, while many types of equipment such as ships, aircraft and vehicles may also have more or less indefinite lives if they are properly serviced and maintained. In practice, the economic life of most capital goods is usually not determined by physical wear and tear but by obsolescence resulting from technological progress or changing relative prices. If all expenditures that prolong the period of time over which a capital good can continue to be used are treated as gross fixed capital formation, it is difficult to know where to draw the line between repairs and maintenance and gross fixed capital formation.

H.2.2.2 Improvements to land

129. Expenditures which improve the quality or productivity of land are treated as gross fixed capital formation. They include expenditures on projects undertaken below ground as well as on the surface. Thus, expenditures incurred on the following kinds of activities are treated as capital formation:

1. The reclamation, clearing and levelling of land for purposes of agriculture or construction;

2. The draining of land; the construction of irrigation channels or ditches; the construction of dams or dikes;

3. The clearing of forests and the planting of new timber tracts, plantations or orchards;

4. The construction or enlargement of mine shafts, galleries or tunnels; the drilling of wells or bore holes to extract known deposits of oil, gas or water; the construction or enlargement of quarries.

130. There is a close generic similarity between these activities and the construction of roads, bridges, road or rail tunnels or dams which are treated as capital goods which can be separately distinguished from the land on, or through, which they are constructed. In practice, there may be no clear boundary between the improvement of land and the creation of a new capital good. It should be noted that gross fixed capital formation includes expenditures on the planting or development of new forests, plantations or orchards but it does not include expenditures on their upkeep or maintenance when they are established.

H.2.3 Other expenditures designed to enhance productive potential or create new production possibilities

131. These consist of expenditures which are undertaken in order to change the future production possibilities of an enterprise by developing new products or processes production, by increasing productivity or efficiency, by influencing demand, or other means but which are not incorporated, or embodies, in capital goods. Research and development expenditures by enterprises are included and also some research and development expenditures undertaken by general government and non-profit institutions.

(The coverage and treatment of these expenditures in the System has still to be worked out at the time of drafting.)

H.3 Changes in stocks

132. The value of changes in the stocks of goods held by producers or by general government for policy reasons, is the remaining component of gross capital formation. Four main kinds of stocks may be distinguished:

(1) stocks of raw materials, semi-processed or finished products held by producers and destined to be transformed, or used up, as intermediate inputs into their processes of production;

(2) work-in-progress: this refers to the value of goods produced during the accounting period but which still require further processing and are not yet in the form in which they are normally delivered or sold on the market;

(3) stocks of their own finished products held by producers pending their sale or other use;

(4) stocks of raw materials or finished products held by general government for strategic or policy reasons.

133. Only goods producers can hold stocks of their own finished products, but all producers, including both market and non-market producers of services, tend to hold stocks of some of the goods which they use as inputs. Large stocks of goods may be held by wholesalers and retailers.

134. The distinction between changes in stocks of buildings or other structures and gross fixed capital formation for large capital goods, especially construction projects, which may take several accounting periods to complete was explained in the previous section, paras. [ ]. When a contract of sale has been agreed in advance the purchaser is deemed to take possession of the output completed each year which therefore becomes gross fixed capital formation. When there is no contract of sale, the value of the work-in-progress on a construction project remains under changes in producers' stocks.

135. As already stated, livestock reared for slaughter are included under producers' stocks whereas animals reared for other purposes, such as the production of dairy products or wool, are treated as capital goods. When it is not feasible to make the distinction between the two, the animals should be included in stocks. Crops and standing timber are treated as work-in-progress until the crops are harvested or trees felled, at which point they enter the stocks of output held by the producer if they are not immediately sold or otherwise disposed of.

136. Changes in stocks of goods held by government for strategic, defence or policy reasons are also included in gross capital formation. These cover stocks of raw materials, fuels or other products held for strategic reasons, or stocks of agricultural or other products accumulated as a result of government intervention in markets to influence prices. Purchases less sales of these stocks by government must be treated as part of government capital formation. The purchase or sale of these stocks is not treated as a trading activity which generates output.

H.3.1 The measurement of changes in the value of stocks held by producers

137. The measurement of the change in the value of stocks can be difficult and it forms the subject of a separate Chapter of this Manual. Only a brief summary of the underlying principles is given here. These principles follow logically from those adopted for the measurement of output, intermediate input and gross value added in the System.

(a) All goods entering stocks are valued at the prices prevailing at the moment when the entries take place: these prices are:

(i) purchasers' prices for raw materials, semi-processed goods or other goods purchased by producers for use as inputs;

(ii) basic prices for finished goods produced as outputs and awaiting sale or other use;

(iii) current costs of production for work-in-progress plus a mark-up for profit when this is known in advance.

(b) All goods withdrawn from stocks are valued at the prices prevailing at the moment when the withdrawals take place: these prices are:

(i) purchasers' prices for raw materials, semi-processed goods or other goods withdrawn for use in production;

(ii) basic prices for finished products withdrawn for sale or other use;

(iii) current costs of production, plus mark-up when this is known, when work-in-progress is transformed into the finished product.

138. The value of the changes in stocks held by producers over the accounting period as a whole is obtained by subtracting the cumulative value of the withdrawals from the cumulative value of the entries.

139. The properties of the System's measure of the value of changes in stocks are explained in Chapters [ ] and [ ]. When prices are changing the properties of the measure are not intuitively obvious as entries and withdrawals taking place towards the end of the accounting period may be valued at significantly different prices from those used to value entries and withdrawals early in the period. In general, the System's measure is not equal to the changes in the quantities of stocks held between the beginning and end of the accounting period multiplied by the average prices of the period. In practice, however, the value of the physical change in stocks calculated in this way may provide a satisfactory approximation to the System's measure provided that the levels of stocks held do not fluctuate much within the accounting period. For further details, reference may be made to Chapters [ ] and [ ].

I. CONSUMPTION OF FIXED CAPITAL

I.1 Introduction

140. Consumption of fixed capital is one of the major imputed flows of the System. It accounts for the difference between flows recorded "gross" and flows recorded "net" in the System: for example, between gross value added and net value added,

between the gross operating surplus and the net operating surplus, between gross capital formation and net capital formation, and so on.

141. Consumption of fixed capital may be defined as the decline, during the course of the accounting period, in the value of the stock of capital goods held by producers measured with reference to a fixed set of prices, or price vector, for those capital goods. When there is prolonged inflation, even moderate or creeping inflation, capital consumption as just defined may bear little relation to depreciation calculated at historic costs for tax or other purposes in business accounts. The decline in value may be attributable to any of the following three factors:

(1) deterioration in the physical qualities of durable producer goods resulting from wear and tear or from the passage of time;

(2) normal accidental damage: that is, accidental damage other than that caused by natural disasters such as earthquakes, floods or tidal waves or by wars;

(3) normal obsolescence due to technological progress in production methods, the development of new substitutes or advances in knowledge which may reduce the demand for existing products: normal obsolescence does not cover totally unforeseen major scientific discoveries which may suddenly and drastically reduce the remaining useful lifetime of capital goods.

Unexpected losses in value attributable to natural disasters, wars, major scientific discoveries and the like are treated as capital losses and not as capital consumption.

I.2 The coverage of capital consumption

142. Capital consumption covers all capital goods used in production in the current period. It does not cover the depletion of natural assets such as mineral deposits, reserves of oil, coal or gas, and so on.

143. It has been argued that with proper repairs and maintenance, certain types of structures such as roads, bridges, tunnels, dams, airports, etc. or even certain types of equipment, do not deteriorate and therefore it is not appropriate to calculate capital consumption for them. This conclusion is not valid, however, because, however durable structures or equipment may be physically, they are liable to become obsolete. For example, railway tracks and railway bridges, which are not very different from roads and road bridges, have been scrapped in many countries purely on grounds of obsolescence. For these reasons, it is necessary to calculate capital consumption for all durable producer goods, including structures of all kinds, even though the service lives for some structures may be very long - up to a hundred years or more.

I.3 The valuation of capital consumption

144. The principal problem posed by the calculation of capital consumption is how to measure the decline in value of producer durable. As already indicated, this decline has to be measured with reference to a specific price vector for capital goods, and it is recommended to take the average purchasers' prices of producer durable over the period in question for this purpose. Mid-period purchasers' prices would be an acceptable alternative.

145. The first step in the calculation is to value all the capital goods existing at the beginning of the period, or purchased by producers during the period, at the actual or estimated average purchasers' prices of the period. In practice, this may be done by adjusting the purchasers' price actually paid for each capital good by average price change for that category of good between the time it was bought and the middle of the current period. It may be technically extremely difficult to do this satisfactorily for some types of capital good acquired many years ago, but consideration of these technical difficulties has to be postponed at this point in order to clarify the basic concept of capital consumption itself. Assuming that all the capital goods in existence at the start of the period, or purchased by producers during the period have been valued at an appropriate set of reference prices, namely the actual or estimated average purchasers' prices for the period, the second step is to estimate the fraction, or percentage, by which the values of each type of good diminishes during the course of the accounting period as a result of the combined effects of the four factors listed above. The amount, or proportion, by which the value of each individual type of capital good tends to decline from period to period over its service life is described as its rate of amortization. The rate of amortization need not be constant over time, either in absolute or percentage terms. Determining the appropriate rate of amortization is not easy either in theory or in practice.

I.4 The rate of amortization

146. The decline in the current value of a capital good depends on the decline between the beginning and end of the accounting period in the present value (at current prices) of the expected stream of future profits or earnings which may be expected from its use in production. From the point of view of economic theory, this provides a rational basis for defining and measuring capital consumption. In theoretical discussions of this topic, it is usually assumed that, as a result of the forces of competition, the present value of a new capital good - that is, the discounted value of the expected stream of future profits using the current interest rate as the discount factor - is equal to the purchaser's price. It follows that the rate of amortization depends mainly on the time profile of the expected stream of future profits.

147. Almost any rate of amortization may be justified by postulating a particular pattern to the flow of expected future earnings, but one time profile which is of particular interest is that in which the stream of earnings declines over time at a linear rate until the capital good is scrapped but without the earnings actually falling to zero. Under these circumstances, it can be shown that the rate of amortization will tend to be linear. The time profile which is needed for future profits in order to justify linear amortization is thus quite plausible. Linear amortization is therefore not just a convenient rule of thumb adopted for simplicity.

148. The great practical advantage of linear amortization is that it is necessary to estimate only a single parameter, namely the expected service life of the capital good, in order to be able to calculate the rate of amortization. If the expected service life is n, the rate of amortization each period is simply the reciprocal of n. Another practical advantage of using linear amortization is that it is widely used in business accounting and may be accepted for the calculation of depreciation allowances for tax purposes. A great deal of information on the lengths of the expected service lives is available from business accounts and tax sources. In addition, technical experts may be consulted in order to estimate the

lives of capital goods. The most difficult problem is to anticipate the effects of technical progress, or possibly other extraneous factors, on the expected service life of a good. The rate at which a good becomes obsolescent depends on unknown future factors, including the amount of future research and development expenditures undertaken.

149. The use of linear amortization is recommended on both practical and theoretical grounds. It may be the simplest method to apply in practice, but it may also be expected to provide a good approximation to the decline in the value of capital good used in production in a wide range of cases. The main alternative is the declining balance method, whereby the value of a good is assumed to decline by a fixed percentage each period instead of a fixed absolute amount. The declining balance method implies that the rate of amortization is faster in the early years than would be the case for linear amortization: for example, it is common to use the double declining balance method where the fraction of the value which is written off each period is given by 2/n so that the amount written off in the first period is exactly twice that for linear amortization, declining subsequently thereafter in a geometric progression. The choice of amortization formula depends upon the view taken about the shape of the expected future earnings from the use of the capital good. The declining balance method implies a very rapid decline in the flow of expected future earnings and is liable to write off the value of most capital goods too quickly. The declining balance method may be viewed as "prudent" from a business point of view, but it tends to amortize too quickly from an economic viewpoint.

I.5 The calculation of capital consumption

150. The first step is to identify the capital goods actually used in production during the accounting period. This can be done by estimating how many capital goods installed as a result of gross fixed capital formation in earlier periods have survived to the current period. For this purpose, it is not necessary to assume that all capital goods of a particular type have exactly the same fixed service life and it may be more realistic to associate probability, or frequency, functions with the service lives centred on the expected service life.

151. The next step is to estimate the current purchasers' price for each capital good still in existence by adjusting the purchasers' price originally paid by the average increase in price for that category of good between the time it was bought and the middle of the current period. This can be done provided suitable price indices for capital goods are available stretching far enough back in time to cover the oldest goods of a given type still in use.

152. This is not the point to enter into a detailed discussion of the methodology of compiling price indices, but it is appropriate to note that the calculation of suitable price indices for capital goods over very long periods of time presents severe practical and conceptual problems. The problem is not so much the choice of index number formula but how to estimate price changes for:

(a) Goods whose quality determines as a result of technological progress and

(b) Goods of a type which are no longer produced at all and whose prices cannot therefore be directly compared with those of new goods on the current market.

153. In order to deal with these problems it may be necessary to resort to linking. A good which disappears through obsolescence has to be replaced by a new one whose characteristics are broadly similar. The price movements for the two goods are spliced together to obtain estimates of price changes over the longer period. Various other devices may also have to be adopted, such as estimating price changes from estimates of the changes in costs of production.

154. In order to be able to arrive at an estimate of capital consumption, however, it is essential to have some estimate for the change in price of each capital good still in use from the period in which it was installed up to the current period. Once estimates have been obtained of the values at current purchasers' prices of all capital goods still in use in the current period capital consumption can then be calculated by applying the appropriate rates of amortization. The procedure just described for estimating the value of the capital stock at current purchasers' prices is one version of the so-called perpetual inventory method. It is described in more detail in the Manual on "Provisional International Guidelines on the National and Sectoral Balance-Sheet and Reconciliation Accounts of the System of National Accounts (United Nations Statistical Papers, Series M No. 60) which includes a worked example on pages 111-113. It should be noted that the same general methodology can be used to calculate both the stock of consumer durable held by households and also the consumption (or use) of those goods during the accounting period.

J. EXPORTS AND IMPORTS OF GOODS AND SERVICES

J.1 Introduction

155. Exports of goods and services consists of actual or imputed sales, or gifts or grants, of goods and services from resident to non-resident economic units, while imports consist of actual or imputed purchases, or receipts of gifts or grants, of goods and services by resident from non-resident economic units. The treatment of exports and imports in the System is generally identical with that in the Balance of Payments Accounts as described in the Balance of Payments Manual of the International Monetary Fund, to which reference may be made for further elaboration of the points made here. The Balance of Payments Manual also indicates the differences, if any, in treatment between the two Systems: such differences are generally insignificant from a national accounts viewpoint.

156. International transactions in services differ in many important respects from those in goods. As explained in Chapter ... above, services are produced to order: they are produced for the benefit of particular units and must have been delivered by the time their production is completed. As a result, the organization of international trade in services is quite different from trade in goods. Goods, or merchandise, are typically produced in advance of any contract of sale and may be transported over considerable distances from their original place of production to be sold long after they have been produced. Services, on the other hand, are provided directly by producers to users. Thus, international trade in services is not only very different in character from trade in goods but has different implications for economic analysis and policy-making. For this reason, and also because of the growing importance of international trade in services, it is necessary to consider exports and imports of goods and services separately from each other. The boundary between them is not always clear-cut in practice, however, as a single transaction may sometimes cover elements of both. For example, in the external account of the System exports and imports of goods are

valued f.o.b. - that is, including the costs of transportation and insurance up to the border of the exporting country - whereas in other contexts, such as input-output tables, the same goods may be valued as they leave their place of production: i.e. at producers' or basic prices. The difference in valuation reflects the additional services of transportation and insurance which have become "embodied" in the goods by the time they reach the frontier. Other transactions involving a mixture of goods and services, such as expenditures by foreign travellers or embassies in the domestic market, may all be recorded under services in the external account.

J.2 Exports and imports of goods

157. In line with the general principles adopted in the System, the exports and imports of goods should be recorded at the time at which ownership of the goods in question passes from a resident to a non-resident economic unit, or vice versa. In practice, however, certain exceptions specified below are made to the principle, at least when ownership is interpreted in a strict legal sense. In any case, it is useful to indicate how the coverage of international trade in goods based on actual or imputed transactions between resident and non-resident units, i.e. on the change in ownership principle, relates to actual movements of goods between different countries. When the ownership of a good is exchanged between a resident and non-resident economic unit, there is a strong presumption that the good will cross the frontiers of the countries concerned either shortly before, or soon after, the change of ownership takes place, but not all exports and imports do so. Conversely, many goods cross frontiers without any change in ownership taking place, so that they are not to be counted as exports or imports.

158. Statistics of international trade in goods in most countries rely heavily on customs documentation submitted at the time goods are cleared at the frontier. This constitutes a further reason for clarifying the differences between the coverage of exports and imports as defined in the System and the actual physical movements of goods between countries. However, it should also be noted that when countries belong to a Free Trade Area, Customs Union or Common Market most goods may cross the frontiers between different member countries without any kind of Customs clearance or documentation at the frontier so that quite different methods of recording exports and imports may be needed. Some kind of documentation may still be needed for Customs or tax purposes but it may be submitted to a central office inside a country instead of being cleared at the frontier. Alternatively, or in addition, direct inquiries may be made to exporters or importers, or records of foreign exchange transactions executed through the banking system may be utilized. It should not be assumed, therefore, that documentation submitted at a frontier is always the principal source of data on exports or imports.

J.2.1 Exceptions to the change of ownership principle

159. Before itemizing the differences between exports and imports as recorded in the accounts and the physical movements of goods across frontiers, it is necessary to specify the exceptions which the System itself makes to the change of ownership principle when the latter is interpreted in a strict legal sense. There are four main types of exception.

J.2.1.1 Goods subject to a financial lease

160. The first exception concerns goods which are the subject of a financial lease. As explained more fully in chapter ..., the System imputes a change of ownership from lessor to lessee when a financial lease is arranged even though legally the leased good remains the property of the lessor, at least until the termination of the lease when legal ownership of the good is usually transferred to the lessee. The rationale for imputing a change of ownership is that the lessee assumes all the rights, risks and responsibilities of ownership in practice, so that from an economic point of view the lessee can be regarded as the de facto owner. The financial lease is essentially a method of financing the (imputed) purchase of the good which the lessee can use instead of taking out a loan. The System therefore imputes a change of ownership at the start of the lease. This treatment is, of course, adopted throughout the System and not merely for international leasing. Financial leasing is particularly important at an international level, however, and large sums may be involved. When a good is exported (imported) under a financial lease, the amount recorded as an export or import should be based on the purchasers' price paid for the good by the lessor and not on the cumulative value of the rental payments. The transaction should be recorded when the lessee takes possession of the good, although the time at which the good crosses the frontier may be used as a proxy for this if necessary. This treatment requires that a loan from the lessor to the lessee should also be imputed in the financial accounts.

J.2.1.2 Goods shipped to branches, subsidiaries or affiliates abroad

161. The second exception to the change in ownership principally concerns goods shipped by an enterprise to a branch or subsidiary which it owns in a foreign country or to a foreign affiliate which belongs to the same group of companies as the exporter. Legally, the ownership of the goods may remain unchanged in such circumstances, but a de facto change of ownership is imputed between the exporting enterprise and the foreign branch or subsidiary whenever goods are shipped between affiliated enterprises. The rationale for this treatment is similar to that for financial leasing, namely that from an economic point of view ownership rights and responsibilities are effectively exercised by the enterprise which receives the goods.

J.2.1.3 Commodity dealers

162. The third exception is one in which a change of ownership may occur but is ignored in the accounts. The exception relates to merchants or commodity dealers who buy commodities or other goods from non-residents and then sell them again to non-residents within the same accounting period without the commodities actually entering the country in which the merchants are resident. The difference between the receipts and the sales of such dealers is treated as measuring the value of the services they provide and recorded under exports of services. If, however, the goods are not resold within the same accounting period, the purchases have to be recorded as imports of goods which are temporarily held in stock; when they are sold abroad in a later period they should be treated as negative imports.

J.2.1.4 Goods sent for processing abroad

163. The fourth and final exception to the change in ownership principle relates to goods which are sent for processing abroad. In general, the principle adopted in

the System is that goods sent abroad temporarily without change of ownership are not to be counted as exports or imports. Goods sent abroad temporarily are to be understood as goods which not only return within less than a year but also return in more or less the same condition as they left, apart possibly from any maintenance, servicing or routine repairs carried out on them. Goods which return in the same state as they left and which have not been the subject of transactions between resident and non-resident units are not to be counted as exports or imports. However, these conditions are not satisfied when an enterprise engages or contracts with another enterprise to carry out certain manufacturing processes on its goods abroad. In this case, the enterprise may ship materials or semi-processed goods abroad which become inputs into the foreign manufacturer's production processes and then receive back the outputs from these processes, paying the manufacturer a fee for the production carried out. In these circumstances, the goods originally sent abroad lose their identity by being transformed or incorporated into other goods: similarly, the goods received back are essentially new goods produced abroad. The goods received back may well be classified quite differently, by Customs authorities and in international trade statistics, from those which were sent out. In these circumstances, the System requires that the goods sent abroad be recorded as exports, even though they may not be sold to a non-resident, while the goods received back are recorded as imports, even though they were not purchased from a non-resident.

164. The treatment of processing raises two issues - whether to record certain flows on a gross or a net basis, and whether to classify those flows as goods or services. If the goods are excluded from exports and imports on the grounds that there has been no change of ownership, then it becomes necessary to identify and record separately as the import of a service the payment which the enterprise makes to the foreign producer for the value added by his processing. If, on the other hand, the flows are recorded gross, as the system requires, the difference between the value of the imports and the value of the exports should be equal to the payment made for the service provided by the foreign processor. The balance between total exports and imports of goods and services is the same in either case, the difference being whether the balance appears as a net import of goods or a net import of services.

165. When goods are sent abroad temporarily to return in the same form as they left without change of ownership, their leaving the economy has no impact on the domestic economy and can therefore be ignored in the accounts. However, when the goods which return are different in form from those which left, the supply and disposition of goods or resources within the economy which sent the goods abroad for processing are changed and for this reason the export and import of the goods concerned cannot be ignored. Another relevant consideration is that it is often difficult to separate goods sent out for processing, and those returned after processing, from other movements of goods in records of international trade flows, so that the gross treatment required by the System is usually easier to implement in practice. However, when it is actually feasible to identify in the trade statistics goods intended for processing abroad and returned after processing it is recommended that they should be shown separately in both exports and imports in the external accounts of the System. When goods which are sent abroad for processing in one accounting period are not reimported until a later accounting period, it is necessary to reflect this on the capital accounts of the countries concerned.

166. When goods are returned after only a very small amount of processing abroad, such as storage or packaging, it can be argued that the net treatment should be

adopted on the grounds that the processing is insignificant, so that it is preferable to record the small amount of value added abroad as an import of a service. It is difficult, however, to provide objective criteria as to what constitutes a significant amount of processing which would make it possible to delineate certain kinds of processes from others. It is suggested, therefore, that goods should be treated as being processed when the goods returned from abroad have to be classified in a different Group (3 digit level) of the Central Product Classification from the goods sent abroad out of which they have been processed. On the other hand, when the goods returned fall in the same Group of the CPC as the goods sent abroad, they should not be included in exports and imports of goods, the processing being treated as a service activity.

J.2.2 The coverage of exports and imports in relation to physical movements of goods

167. For various reasons, the flows of goods which leave and enter a country within a given accounting period are not identical with the exports and imports which need to be recorded in the accounts, and it is useful to clarify the differences in coverage between the two kinds of flows. One reason why they may differ is simply that the time at which the ownership of a good changes, or is deemed to change, from a resident to a non-resident, or vice versa is often not the same as the time at which the good is transported from one country to the other. Transportation may precede, or lag behind, the change of ownership by varying lengths of time. Moreover, when the countries are geographically separated from each other so that some time elapses between a good leaving one country and arriving at the other country, it is impossible for the change in ownership to coincide with both the time of departure and the time of arrival. If the time at which a good crosses a frontier is used as a proxy for the time at which ownership changes discrepancies are likely to be created between the values of exports and imports and other items in the national accounts such as sales, purchases and changes in stocks as reported by producers. Such discrepancies are unavoidable if statistics on physical movements of goods across frontiers are the principal source of data for estimating exports and imports. Discrepancies of this kind which are due to differences in timing tend to become relatively more important the shorter the accounting period, and they may be a significant source of error in quarterly accounts, especially for countries whose foreign trade is large in relation to domestic production. When the estimates of exports and imports are based on direct inquiries to producers, the incidence of such discrepancies may be less.

168. A further problem is that exporters and importers of goods may not perceive the change of ownership as taking place at the same moment of time. When there is a firm sales contract, the exporter may record the change of ownership in his accounts as occurring when the goods are dispatched, whereas the importer may not acknowledge change of ownership until signing and accepting the relevant import documents (including the bill of lading which is generally done at the time the importer takes possession of the goods). While such differences may not introduce any discrepancies between the recording of different items within the domestic accounts of each of the countries concerned taken separately, they are bound to introduce asymmetries into the recording of international trade flows at a world level.

169. Apart from discrepancies due to the fact that the physical movements of goods across frontiers may not coincide with the times at which changes of ownership occur, there are also differences in coverage between exports and imports of goods as recorded in the System and the flows of goods across frontiers.

J.2.2.1 Goods sold as exports, or purchased as imports, without crossing the country's frontier

170. It is not feasible to give an exhaustive list of such goods, but some important examples are the following:

(1) Transportation equipment or other movable equipment not tied to a fixed location which need not therefore necessarily cross the frontiers of either the exporting or the importing country as a result of being sold (purchased) by a resident to (from) a non-resident;

(2) Goods produced by resident units operating in international waters - oil, natural gas, fishery products, maritime salvage, etc. - which are delivered directly to non-residents in foreign countries;

(3) Goods consumed in resident-owned offshore installations, ships or aircraft operating in international waters or airspace which are purchased from non-residents in foreign countries;

(4) Goods lost or destroyed after changing ownership before they have crossed the frontier of the exporting country or the importing country.

J.2.2.2 Goods crossing frontiers without counting as exports or imports

171. It is not feasible to give an exhaustive list of all possible cases, but some important examples are the following:

(1) Goods in transit through a country;

(2) Transportation equipment and other movable kinds of equipment which leave or enter a country temporarily, i.e., for less than a year, without any change of ownership; for example, construction equipment used for installation or construction purposes abroad;

(3) Equipment and other goods sent abroad for maintenance, servicing or repair; such goods are not transformed into different goods and hence are quite distinct from goods sent abroad for processing. In the case of large capital goods, such as ships, sent abroad for extensive repair, renovation or refitting, the repairs and replacements are to be classified as imports of goods, rather than services, especially when the repairs are such that they have to be carried out by manufacturing type establishments such as shipbuilders, rather than specialist repair ships;

(4) Other goods which leave, or enter, a country temporarily, being generally returned within a year in their original state and without change of ownership; various examples may be cited:

(a) goods sent abroad for exhibition purposes only; equipment for orchestras, theatrical companies, etc. while on tour abroad;

(b) goods on consignment which are returned home because an expected sale does not materialize;

(c) goods rented under an operating lease which leave a country temporarily;

(d) animals sent abroad for racing, show jumping, other forms of entertainment, or breeding purposes;

(5) Goods shipped to or from a country's own embassies, military bases, or other enclaves which are geographically situated inside the national frontiers of another country;

(6) Goods on consignment lost or destroyed after crossing a frontier but before change of ownership occurs.

J.2.3 Gold

172. Shipments between countries of commodity gold - that is, gold which is not held as a financial asset and as a component of foreign reserves by the central bank or other monetary authorities - are treated in the System in the same way as shipments of other goods. When gold is monetized or demonetized - that is, reclassified from a commodity to a financial asset, or vice versa, by the action of the central bank or monetary authorities - the reclassification is recorded in the reconciliation accounts of the System and does not affect either its exports or imports. As monetary gold is treated as a financial asset and not as a good, transfers of monetary gold between the central banks or monetary authorities of different countries are not counted as exports or imports.

J.3 Valuation of exports and imports of goods

173. In general, exports and imports, like final expenditures on consumption or gross capital formation, are to be valued at current market prices. However, the price paid for a good depends on the location at which it is delivered. Goods which are available in different locations are different goods (or at least different qualities of the same good) from an economic point of view even though they may be physically identical in other respects. Thus, when a good is transported some distance, it may be regarded as being transformed into a different quality of the same basic kind of good. For some goods, such as water, oil, coal, natural gas or mineral deposits, their transportation from the location in which they occur naturally to some other location in which they are economically more useful is what is generally understood as their production. However, when the transportation of a good increases its value only marginally, it is sometimes useful to consider the transported good as if it is a composite product, or package, consisting of the original good plus some embodied transport services, rather than a single good.

174. In foreign trade, the point at which goods are valued is critical given the large distances over which they are liable to be transported. The most useful point of valuation is generally agreed to be the frontier of the country from which they are exported, at least in the case of exports which do physically cross the frontier of the exporting country. For goods which do not cross the frontier the basic price received by the seller should be used. The value of an export at the frontier of the exporting country is its f.o.b. (free-on-board) value which includes costs of transporting the good to that point and loading on to a carrier for the onward transportation, if necessary. Conceptually, the f.o.b. price can be regarded as the purchaser's price that would be paid by an importer taking delivery of the good after it has been loaded on to his own carrier, or other carrier, at the exporter's frontier after payment of any export taxes or the receipt of any tax rebates.

175. This method of valuation implicitly determines the boundary between exports of goods and exports of services in the System and in Balance of Payments Statistics. The costs of transporting of exported goods up to the frontier are treated in the same way as other production costs and hence are an integral part of the costs of delivering the goods at the required location. In general, the purchaser's price for a good is an inclusive measure of the value of a good at a particular location which treats the costs of transportation no differently from other production costs. If, therefore, the transportation up to the frontier is actually carried out by a different economic unit from the producer or manufacturer, the transportation costs have to be added to the price received by the producer and included in the value of the goods exported. In principle, the transportation should be treated as an intermediate input into the complete process of production which terminates when the exported goods are delivered at the required location. Even if the transportation up to the frontier of the exporting country is actually carried out by the importer or other non-resident economic unit, the costs should nevertheless still be included in the value of the goods exported. Although the importer may be transporting his own goods and hence not engaging in transactions with foreigners in respect of this activity, it is necessary to recognize the transportation costs by imputing the purchase of transportation services by the exporter and increasing the price actually received by the exporter accordingly. In this way, the imputed f.o.b. price recorded for the good minus the imputed import of transport services will equal the actual price received by the exporter, so that the balance between exports and imports of goods and services is the same whether or not the imputation is made. In general, however, it is desirable that the f.o.b. price should not be affected by the way in which transportation up to the frontier of the exporting country is organized or paid for.

176. Imports as well as exports of goods are to be valued f.o.b. in the System: in other words imports are also to be valued at the customs frontier of the exporting country. Valuing exports and imports in the same way promotes consistency in the recording of trade flows at a world level and enables visible trade balances to be shown correctly. The use of f.o.b. values for imports implies that the costs of transporting imports of goods after they have left the frontier of the exporting country have to be treated as imports of services when the transport is provided by non-resident carriers. When the goods are transported from the frontier by resident carriers there are no service imports as there are no transactions with non-residents.

177. In practice, importers may take delivery of the goods which they import at any convenient location which will not always coincide with the point at which they are valued for purposes of recording exports and imports in the accounts of the System. Importers need not take delivery at a frontier: they will usually tend to take delivery inside their own country or possibly inside the exporting country or even in a third country. Moreover, the costs of transportation, which include storage, loading and insurance as well as the movement of the goods, may initially be incurred wholly or partly by the exporter, wholly or partly by the importer, or by some third party. There are thus many different ways in which international trade in goods may be organized so that the transactions which actually take place between residents and non-residents may sometimes require rearrangement or manipulation to get them into the format required by the System.

178. In the case of most exports, it should be possible to derive the f.o.b. price with reasonable accuracy from the prices or values recorded in Customs documentation submitted at the frontier, or similar documentation submitted to

other administrative agencies. In the case of imports, however, the Customs documentation or other administrative records normally provide information on the c.i.f. (costs, insurance, freight) price rather than the f.o.b. price. Conceptually, the c.i.f. price can be regarded as the purchaser's price that would be paid by an importer taking delivery of the good at his own frontier, before paying any import duty or other tax levied at the frontier. The difference between the c.i.f. and the f.o.b. price represents the costs of transportation, including insurance charges, between the customs' frontier of the exporting country and that of the importing country. This difference varies according to the country of origin of the exports and may be quite substantial when the exporting and importing countries are at some distance from each other. In practice, it is usually difficult to convert from recorded c.i.f. prices to estimated f.o.b. prices for individual imports or categories of imports, so that adjustments can often be made only globally for large groups of imports or even total imports. Estimates of transport and insurance costs between the frontiers of the exporting and importing countries can be made from a knowledge of average freight charges, insurance rates, average distances travelled, and so on for large groups of exports. Sample surveys of trade invoices may also provide information on c.i.f./f.o.b. ratios which may be used to estimate the global adjustment needed to the c.i.f. value of imports. Another method of estimation may be based on surveys of importers or shipping operators, or their agents.

179. Thus, while total imports of goods must be recorded f.o.b. in the System, the extent to which it may be feasible to disaggregate imports valued f.o.b. by type of good or country of origin is uncertain in practice. It may be much easier for some countries than others, but many countries find it impossible to provide detailed figures of imports valued f.o.b. For this reason, it is sufficient for purposes of the System to record total imports f.o.b. in the external accounts and to show as a memorandum item the value of associated transportation costs which enable the global adjustment to be made from total imports valued f.o.b. to total imports valued c.i.f.

180. In the input-output tables of the System, including the make and use matrices, which display the supply and disposition of goods and services at a detailed level, it may only be feasible to show detailed figures of imports c.i.f. In such tables, however, there may be analytical advantages to be derived from valuing imports c.i.f. The input-output tables and make and use matrices also contain the information on transportation and insurance costs needed to make the transition from total imports valued c.i.f. to total imports valued f.o.b.

J.4 Exports and imports of services

J.4.1 Introduction

181. The exports and imports of services recorded in the System consist of services provided directly by residents to non-residents, and vice versa. As already explained in chapter [ ] above, the production of a service usually takes the form of an activity which is designed to secure an improvement in the condition of some economic unit (or prevent a deterioration in the condition of a latter) by prior arrangement. The way in which international trade in services tends to be conducted differs in several important respects from trade in goods, and it is necessary to elaborate these first in order to clarify the coverage of trade in services.

182. International trade in goods is an activity which is conducted separately from production, goods being produced in one country and period of time and then subsequently delivered to purchasers, or users, in different parts of the world in later periods. The identity of the users may not even be known at the time production takes place. On the other hand, the production of a service has to be directed towards a particular consumer or user, or group of consumers, by prior arrangement. The export of a service requires some kind of contact between a resident producer and a non-resident consumer at the time production actually takes place. The nature and organization of international trade in services is therefore generally quite different from goods, as production and trade tend to be inextricably linked together. International trade in services can often be equated with international production of services, as the actual process of production itself must involve both a resident and a non-resident.

183. In the case of transportation, the contact between producer and consumer is made possible by the mobility of the transport equipment itself. For other types of services, including information services, the contact may be established by means of telecommunications links of one kind or other. However, the production of most services, both producer services and consumer services, requires the producer and consumer to come together in some convenient location: this is the case for a wide range of services such as most business and financial services, repairs, health, education, recreation, entertainment, and so on. At an international level, the producer may have to travel to the country of the consumer, or vice versa. The mobility of service producers has been greatly enhanced by fast and frequent air travel, while telecommuniciation links enable staff abroad to continue to draw on the resources or expertise of staff in head offices.

J.4.2 The residence of service producers

184. For example, it is common for producers of business services, such as consultancy or other advisory services, to send teams of staff to work abroad on assignments resulting from specific contracts negotiated with non-residents. As already explained in Chapter ... above, such production units operating abroad are considered to be integral parts of the parent enterprise to which they belong, provided that the volume of production which they carry out abroad and the length of time over which that production takes place do not become so large that the enterprise cannot reasonably be treated as not having a centre of economic interest in the country concerned. When a production unit operating abroad establishes a substantial physical presence in a foreign country by purchasing or renting business premises, acquiring capital equipment, recruiting local staff, and so on, with the intention of engaging in production over a long period of time, the production unit in question has to be treated as a foreign branch - that is, as a quasi-corporation which is resident in the country in which it is operating. In these circumstances, the output of the branch counts as part of the gross domestic product of the country in which it is located so that it cannot be treated as an export from the parent enterprise which owns and controls it. Nevertheless, it is perfectly possible that a parent enterprise will provide some genuine services to its branch abroad which will have to be recorded as an export of services.

185. The criterion of residence just outlined, which is described more fully in Chapter [ ] above, applies equally to all enterprises, whether engaged in the production of goods or services. However, the issue is particularly pertinent to services producers because establishing a foreign branch (or subsidiary) which supplies services directly to the residents of a foreign country may be the only

means by which an enterprise engaged in service production can expand its sales to non-residents - i.e. increase its exports. An enterprise which creates a foreign branch for this purpose may regard itself as continuing to "export" services, even when the branch is established on an indefinite, or permanent, basis. However, such a branch would be classified in the System as a quasi-corporation which is resident in the country in which it operates, so that the way in which exports and imports of services are recorded in the System may differ from the way in which the enterprise themselves perceive them. Enterprises may not recognize any threshold beyond which the production is classified as contributing to the GDP of the country in which the branch is located instead of contributing to the GDP of the country in which the parent enterprise is located. For this reason, exports and imports of services as recorded in the System may be much less than those engaged in their production consider to be taking place.

186. The differences between international trade in goods and in services are highlighted by the fact that policy issues in the field of international trade in services are not principally concerned with barriers to flows of goods and services across borders (transborder flows being minimal for most services) but with quite different issues such as the right to establish branch offices (or subsidiaries) abroad, the free movements of capital and qualified personnel, the recognition of the professional qualifications of staff in different countries, the removal of internal restrictions on competition, and so on.

187. From a national accounts viewpoint, the central issue is not so much the exact definition, or coverage, of exports or imports as the definition and coverage of gross domestic product itself. When a branch office is producing services on a permanent basis inside a country, the value added must be considered part of the GDP of that country, irrespectively of the country of residence of the parent enterprise. When the output is sold to residents of the same country it obviously cannot be classed as an export.

Construction

188. It is convenient to consider the special case of construction at this point as the treatment of international construction raises the same issues as those just discussed with reference to business, consultancy or other services. Although structures themselves are obviously goods, the way in which their production is organized has some important points in common with the way in which service production is organised. In particular, very large structures are invariably produced on the order of a specific client and the producer is obliged to carry out his production at the site chosen by the client, close contacts being maintained between the producer and the client at every stage of the production process.

189. Contracts for the construction of major projects such as bridges, power stations or dams are frequently awarded to non-resident enterprises, so that transactions related to construction have become much more important at an international level. When a construction enterprise in country A is awarded a contract in country B, the enterprise is obliged to create a site office in country B from which the construction is managed and carried out, in much the same way that an enterprise exporting services may have to open a branch office abroad. It is clear from the previous section that the crucial question is whether to treat the site office as a separate insitutional unit which is resident in country B rather than country A. Although the site office may have no separate legal identity, it may nevertheless be treated as a quasi-corporation for this purpose.

The main argument against this treatment is that the site office is created for the duration of a specific project and is dismantled when the project terminates. It cannot therefore be interpreted as evidence of a lasting economic interest in country B by the enterprise.

190. If a quasi-corporation is not created on these grounds, the consequences are that the construction site has, in effect, to be treated as an enclave of country A inside of country B which is similar to that of an embassy or military base maintained by country A. The value added inside the enclave can then be treated as part of the GDP of country A and the value of the final output produced, i.e. the dam or bridge itself, is treated as an export from country A to country B. In line with the general principles applied to the measurement of the output of construction, the dam or bridge can be treated as being completed and delivered to the client in stages, year by year. While this solution has some merit, it has the serious disadvantage that the value added generated by a major construction project, such as the construction of a dam or bridge which lasts several years, is not attributed to the country in which the activity actually takes place. This seems particularly anomalous when most of the labour and materials employed on the project are likely to be supplied locally, while the project itself is likely to have an important impact on incomes and expenditures in the locality. For this reason, it is proposed that quasi-corporations should always be created for major construction projects which last for a year or more, even though there may be no lasting economic interest in the country by the construction enterprise.

191. The consequence of creating a quasi-corporation unit for a construction project undertaken in country B in the above example is that the only exports which are recorded from country A to country B are the goods and services supplied from country A which are incorporated into the final structure: for example, surveyors' plans prepared in country A or turbines or other hydro-electric equipment manufactured in country A which are installed in the dam in country B. ALthough there may be no change of legal ownership when the parent construction enterprise in country A ships equipment to its own construction site located in country B, the System imputes a change of ownership for deliveries of goods to branches or subsidiaries abroad which are not returned (see para. [ ] above). The project may also generate important international income flows, including compensation of employees as well as profits.

192. The installation of large capital goods or equipment is an activity which has much in common with construction. However, as the installation of a specific amount of capital equipment abroad is clearly a project of very limited duration which, in itself, does not signal any lasting economic interest in the country in which it takes place, it is not appropriate to create a quasi-corporation in respect of that activity, even if it happens to take more than a year to complete. Thus, the installation of equipment abroad is always treated as an export of a service in the System and in Balance of Payments Statistics. In practice, the value of the installation costs, like transportation costs, may be included in the global value of the equipment exported and may not need to be separately recorded therefore.

J.4.3. The timing, valuation and coverage of exports and imports of services

193. The time at which the export (import) of a service is to be recorded is the time at which it is delivered (received), which usually coincides with the time at which its production is completed. It should be valued on the basis of the amount payable by the consumer.

194. The services which enter into exports and imports of services must have been produced as outputs from processes of production. They do not include factor incomes which are sometimes described as payments for "services" rendered in the course of production. Payments of compensation of employees from residents to non-residents, or vice versa, are international flows of factor income. Such payments occur, for example, in the case of seasonal or other short-term workers or border workers who work in a different country from that in which they are resident. Similarly, flows of property income, such as interest, dividends or royalties, between residents and non-residents are excluded from international trade in services.

195. The coverage of exports and imports of services corresponds broadly to the types of services which are described in Sections 6 to 9 of the Central Product Classification, or CPC. However, whereas the CPC treats all repairs and processing as service activities, the System does not. As already noted, major alterations to, or renovations of, capital goods and also processing on a fee or contract basis which leads to major changes or transformations of the goods processed are not recorded under exports and imports of services in the System. The System records the export (import) and subsequent reimport (re-export) of the actual goods themselves in such cases, as distinct from the value of the repair or processing services carried out on the goods.

J.4.4 Selected types of trade in services

J.4.4.1 Transportation services

196. It is first necessary to distinguish goods transporation from passenger transportation and then to distinguish within goods transportation those services directly linked to exports and imports of goods.

J.4.4.1.1 Goods transportation

197. As already stated, by valuing both exports and imports f.o.b. at the frontier of the exporting country, the boundary between trade in goods and trade in services in the System is implicitly fixed. This method of valuation also determines the treatment of goods transportation. It is necessary to distinguish transportation within the exporting country up to its frontier, i.e. the point at which the goods are valued f.o.b., from transportation beyond that point, which covers both transportation between the frontier of the exporting country and the frontier of the importing country and transportation within the importing country to the final destination of the goods.

198. Transportation costs up to the customs frontier of the exporting country should be incorporated into the f.o.b. price of the goods at that point. The transportation services must not be counted twice, however, so that when they are provided by the exporter or other resident of the exporting country they should not also be recorded as exports of services. However, when the importer (or other resident of the importer's country) is responsible for the transportation of the goods from the factory of the foreign producer up to the frontier of the exporter's country, these transportation costs need to be added to the foreign producer's price to arrive at the f.o.b. price. This procedure requires an offsetting imputation to to be made whereby the foreign producer is deemed to purchase these services from the importer: otherwise, the value of the foreign earnings of the exporter would be overstated.

199. Transportation beyond the customs frontier of the exporting country, whether outside or inside the importing country, should be recorded as imports of services when the transportation is provided by a carrier who is not resident in the importing country. When the imports of goods are initially recorded c.i.f. instead of f.o.b. the transport costs between the customs frontiers of the exporting and importing countries should first be deducted from the c.i.f. price to arrive at the f.o.b. price. These transportation services should then be recorded as imports of services when they are provided by a non-resident, as just stated.

200. The transportation in the rest of the world by resident carriers of goods owned by non-residents which do not enter the resident carrier's country as imports are recorded as exports of services. Conversely, the transportation within a country by non-resident carriers of goods owned by residents which do not leave that country as exports are recorded as imports of services.

201. All the procedures outlined above for the recording of goods transportation apply generally whether the mode of transport is by air, sea or land.

J.4.4.1.2 Passenger transportation

202. Following the general definition of trade in services, exports cover the international transportation of non-residents by resident carriers, while imports cover the international transportation of residents by non-resident carriers. These services also include the transportation of residents within their own country by non-resident carriers. Services provided by resident carriers within their own country to non-residents are not included here but shown under the heading of "travel". Passenger transportation includes the food, drink or other goods supplied to passengers while travelling: the value of the ticket is assumed to cover the cost of these items when they are provided without additional charge. Any additional services provided to passengers, such as the transport of excess baggage or vehicles or other effects belonging to passengers which are transported with them on the same train, ship, aircraft or other vehicle are also included under passenger transportation.

J.4.4.2 Insurance

203. Following the general definition of trade in services, exports cover the provision of insurance to non-residents by resident insurance enterprises, while imports cover the provision of insurance to residents by non-resident insurance enterprises. However, the treatment of insurance on goods which are in the process of being exported and imported has to be consistent with the valuation principles adopted for exports and imports of goods and the same conventions must be followed as for goods transportation in these circumstances. These conventions may be summarized as follows:

(1) Insurance on internationally traded goods from the exporter's factory, or warehouse, up to the frontier of the exporter's country is to be included in the f.o.b. value of the goods exported. If this insurance is paid for by the importer using an enterprise resident in the importer's country, the exporter is imputed as purchasing the insurance and simultaneously recovering its costs out of the f.o.b. price recorded in the accounts.

(2) Insurance on goods in transit after they have passed the frontier of the exporting country are recorded as imports of services by the importer when the

insurance is provided by a non-resident of the importing country. If the insurance is provided by an enterprise resident in the importing country, it does not need to be recorded in the external accounts, bearing in mind that imports, as well as exports, are recorded f.o.b. and not c.i.f.

204. Exports and imports of insurance services are valued by the amounts of the service charges included in the gross premiums earned, and not by the premiums themselves. In the case of accident insurance, it is necessary to distinguish between insurance charges in respect of exports and imports of goods and other insurance, for example the insurance by resident (non-resident) enterprises of buildings or property which is owned by non-residents (residents). In order to estimate the insurance service charges in respect of exports and imports it is proposed to adopt a simplified procedure for the calculation of the service charge in which the income from the investment reserves is ignored. The export of accident insurance services by resident insurers in respect of goods exported or imported may then be estimated by the difference between the premiums earned on those goods and the associated claims payable on goods lost or destroyed in transit. Conversely, the import of accident insurance services from non-resident insurers in respect of goods imported may be estimated by applying the ratio of the estimated service charges to gross premiums for exports of insurance services to the gross premiums paid to the non-resident insurers.

205. The calculation of international flows of insurance services charges in respect of other forms of accident insurance, or life insurance, presents practical problems. The methods which can be used will be constrained by the nature of data available. One possibility is to apply ratios of the estimated service charges to gross premiums established on aggregate for resident insurance enterprises to the international flows of premiums paid by resident (non-resident) institutional units to non-resident (resident) insurers. Similar methods may also need to be used for international flows of services in respect of the management of pension funds.

J.4.4.3 Health and education services

206. In view of the increased mobility of patients and students resulting from the fast, frequent and relatively inexpensive air travel, it is desirable to identify exports and imports of health and education services separately. Exports (imports) of health services consist of treatments, including accommodation, meals and other associated expenses, provided by resident (non-resident) health establishments to non-residents (residents). Similarly, exports (imports) of education services consist of tuition and other educational services, including accommodation, meals and other associated expenses, provided by resident (non-resident) educational establishments to non-resident (resident) students. It should be noted that foreign students are treated as non-resident even if their period of study extends beyond one year, provided they continue to be financed from abroad. If it is not possible to obtain separate data on exports and imports of health and education expenditures they will be included under the general heading of "travel".

J.4.4.4 Travel

207. The item "travel" does not refer to a particular type of service as such, and hence for this reason is not identified in the Central Product Classification. Exports of travel cover purchases of all kinds of consumer goods and services made by non-resident visitors including businessmen, or tourists or other travellers while temporarily in the country, except for expenditures on health and education

which should be separately recorded when possible. Similarly, imports of travel cover all purchases of consumer goods and services, except health and education made by residents while travelling abroad for business, pleasure or other reasons.

208. Expenditures on travel, and also passenger services, must be subdivided to distinguish expenditures made by business travellers, which are paid, or reimbursed, by their employers from expenditures made by households. Expenditures by business travellers form part of the intermediate consumption of enterprises, whereas expenditures by other tourists travelling in a personal capacity form part of household consumption expenditures. In order to calculate total household expenditure from the total expenditures made by residents and non-residents, within the domestic economic territory, it is necessary to add expenditures on travel by resident households abroad and subtract expenditures on travel made by non-resident households within the domestic economic territory.

J.4.4.5 Business services

209. Exports of business services, including consultancy services, may be provided by a resident enterprise sending some of its staff abroad on temporary assignments to advise or assist foreign clients. However, if an enterprise establishes an office, branch or subsidiary in a foreign country on a permanent basis, that office, branch or subsidiary cannot be resident in the same country as the parent enterprise, so that its services cannot be treated as exports of services by the latter. The services provided by offices, branches or subsidiaries established abroad form part of the output of the country in which they are located - i.e. resident.

J.4.5 Currency conversion

210. Sales or purchases of goods and services beweeen residents and non-residents may be denominated in a variety of national currencies, or possibly other international units of account. They must be converted into the national currency of the country in order to be able to compile its national accounts. As a general principle, the System recommends that such conversion should be made using the official or spot market exchange rate at the time the transaction takes place - that is, at the time the change of ownership occurs or is deemed to occur. In practice, the situation may be complicated by lack of detailed information or by the existence of more than one exchange rate, and the procedure to be followed in such cases is outlined in the following paragraphs.

211. When banks or other officially authorized foreign exchange dealers operating on free exchange markets quote different rates at the same time for the purchase and sale of the same currency, the margin between the rate at which they sell a foreign currency and the rate at which they purchase the same currency is essentially a payment for the service of exchanging money. When exporters and importers have to convert currency at these different rates instead of at the spot rate, the value of the exports and imports recorded in the accounts in national currency should be calculated at the average of the purchasing and the selling rates - that is, the midpoint between them. The difference between the rate at which a bank purchases foreign currency from an exporter and the midpoint rate should be treated as a service charge paid by the exporter to the bank and should not be included in the price of the exports when denominated in national currency. Similarly, the difference between the rate at which a bank sells currency to an importer and the midpoint rate should be treated as a service charge paid by the

importer to the bank and should not be included in the value of the imports when denominated in national currency. These bank service charges should be recorded as exports of services when the service charges are received by resident banks from non-residents, and as imports of services when the charges are paid by residents to non-resident banks.

212. In principle, the currency conversions should be made at the rates prevailing at the times the transactions take place, as already mentioned. However, the exact times at which individual transactions take place are usually not known, or at least not recorded, with the exception of a few very large transactions such as those involving the purchase or sale of capital goods such as ships or aircraft. In practice, the only records available are likely to refer to the total values of a series of transactions taking place within a given period of time, such as a particular month or quarter. When the exchange rate varies over time, it is necessary to take an average of the daily rates in order to obtain an average exchange rate which can be used to convert the total value of the transactions within the relevant period of time. In these circumstances, it is important to try to ensure that the period over which the average is calculated is kept as short as possible. This will depend on the frequency with which transactions data are reported.

213. In countries where international transactions are subject to exchange controls, it may happen that the rates at which foreign currency may be purchased or sold through banks or other authorized exchange dealers may be different according to the type of transaction and also the identity of the transactor. The purpose of such multiple exchange rates is to encourage or discourage particular types of transactions for policy reasons. Under these circumstances the price received by an exporter in his own currency will depend on the particular exchange rate at which he is entitled to convert his foreign earnings as well as the price at which the good or service is sold abroad. In effect, by operating a system of multiple exchange rates, the government is able to increase, or reduce, the price received by the exporter in much the same way as may be realized by imposing taxes, or subsidies, on exports under a unitary exchange rate system. Similarly, different categories of imports may be subject to implicit taxes or subsidies.

214. In the domestic accounts of the System, imports and exports have to be recorded at the market prices actually paid or received by the importers or exporters in the same way as other transactions. This implies that the associated payments or receipts of foreign currency have to be converted at the actual - that is multiple - exchange rates which were used for the purpose. However, the implicit taxes or subsidies resulting from the operation of multiple exchange rates should not be treated as if they were levied, or granted, by the non-resident parties to the various transactions when they originate from domestic policy measures. If control over foreign exchange transactions is vested in the Central Bank, the profits or losses accruing from the operation of a multiple exchange rate system will be reflected in its own accounts.

215. In order to ensure that the external account of the System presents a more realistic picture of the economy's relations with the rest of the world, estimates of the implicit taxes and subsidies resulting from the use of multiple exchange rates should be shown explicitly. In order to do this it is necessary to make use of a unitary exchange rate and it is proposed that the average rate for all international transactions conducted during the period in question should be used. The average covers all transactions including flows of income and capital as well

as goods and services, and should be weighted according to the total values of the transactions conducted at the various rates. The resulting average exchange rate is not to be interpreted as an estimate of some kind of hypothetical equilibrium exchange rate that might be reached in foreign exchange markets in the absence of any restrictions or exchange controls. It is simply an average of the actual transaction rates to be used as a unitary rate for accounting purposes.

216. The differences between the values of sets of transactions converted at the actual multiple rates and the same values converted at the unitary rate give rise to global adjustment items which are to be treated as net taxes linked to production, net taxes on income or net taxes on capital depending upon whether they are deemed to be levied on flows in the production account, the income and outlay accounts or the capital accounts of the System. These adjustment items are to be shown explicitly in the external accounts of the System together with the values of the corresponding transactions converted at the actual multiple exchange rates. The imputed taxes on exports and imports affect total GDP. The other accounts of the System, including the accounts for individual sectors are not affected by the imputations.

CHAPTER VII: PRODUCTION ACCOUNTS FOR INDUSTRIES AND THE INPUT-OUTPUT TABLES*

Introduction

1. In the System, production accounts are compiled for industries as well as for sectors. For the analysis of production by type of industry, however, it is necessary to use different kinds of units from the institutional units which are used elsewhere in the System. An institutional unit in its capacity as a producer of goods and services is generally referred to as an "enterprise". The term, "enterprise" is also used with this same meaning in the International Standard Industrial Classification of All Economic Activities, or ISIC, (Rev.3) published by the United Nations Statistical Office. However, a single enterprise as so defined may engage in more than one kind of productive activity and produce several different kinds of products, so that when enterprises are grouped into industries according to their principal activities, the resulting industrial groupings are not homogeneous with respect to either the productive activities carried out within each grouping or the goods and services produced. Although the principal activities of a group of enterprises may all be the same, the group will inevitably also include some other activities, some of which might be quite different from the principal activities. This lack of homogeneity is a serious disadvantage for analyses of production in which the technology of production plays an importnat role.

2. In economics, a production function is a formal representation of a process of production which specifies how the outputs produced vary in relation to the inputs consumed. The form of the function depends on the technology of production used; that is, on the particular activity or process of production employed. Although such functional relationships do not have to be linear, it may be possible to approximate them satisfactorily by linear functions over limited ranges of output variation, and this justifies the widespread use of techniques such as input-output analysis, activity analysis or linear programming in empirical work on production. In any case, however, it is essential that a group of producer units should all be utilizing the same underlying production function if observations on their inputs and outputs are to provide information about the properties and parameters of that function (in particular, about input-output coefficients) which can be used for purposes of economic analysis, forecasting or planning. For these kinds of analyses, the producer units which make up an industry need to be as homogeneous as possible with respect to the kind of productive activities on which they are engaged.

3. The activities themselves may be described and classified by reference to three characteristics, namely:

- the goods and services they produce as outputs;

- the intermediate and primary inputs they consume;

- and the actual techniques of production itself.

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the author.

For purposes of input-output analysis it would be advantageous if each activity produced only a single output, and if each good or service were produced by only a single activity, but in practice a one-to-one correspondence does not exist between activities and products. Certain activities, however narrowly defined, may produce more than one good or service, while conversely the same good or service, for example electricity, may be produced by using quite different activities or processes.

4. Enterprises are institutional units which may be engaged in several different kinds of production simultaneously. They are not suitable units, therefore, for grouping into industries for purposes of input-output analysis. Enterprises engaged on more than one activity have to be partitioned into more homogeneous units of production so that different activities carried out within the same enterprise can be separately identified and classified. In this way, different parts of the same enterprise can be allocated to different industries, when appropriate.

5. It should be noted that an industrial grouping of enterprises based on their principal activity may be useful for other purposes, such as studies of industrial organization or concentration, the analysis of market behaviour, the type or distribution of ownership, and so on, but when the technology of production plays an important part in the analysis of the data it is preferable to use a unit, namely the establishment, which is intended to cover only a single kind of productive activity.

Enterprises

6. Before defining and explaining the concept of an establishment, it is useful to recapitulate briefly the characteristics of an enterprise. From the point of view of the System the crucial feature of an enterprise is that it is an institutional unit as defined in chapter ... above. An institutional unit is either a household or a legal or social entity with the following characteristics:

(1) It is entitled to own goods or assets, and to incur liabilities, in its own right and exercises this right by engaging in transactions with other institutional units on its own behalf; an institutional unit is directly responsible and accountable by law for the actions and decisions which it takes; and

(2) Either a complete set of accounts, including a balance sheet of assets and liabilities, exists for the unit or it would be feasible and meaningful, from both an economic and legal viewpoint, to compile a complete set of accounts if they were required.

Not all institutional units are producers of goods and services and only those which do so are described as enterprises.

7. Institutional units engaged on production include not only corporate and unincorporated enterprises as described in Chapter ... above but also non-profit institutions and government units. In their capacities as producers, all of these units may be regarded as enterprises, but it may not be appropriate to use the term "enterprise" when referring to their other activities or transactions which lie outside the sphere of production.

8. Corporations and non-profit institutions are usually required by law or by tax authorities to prepare, and sometimes to publish, complete sets of accounts on a

regular basis. Unincorporated enterprises may similarly be required by tax authorities to maintain proper accounts, but not all unincorporated enterprises recognized in the System are obliged to maintain proper accounts, at least in practice. For example unincorporated enterprises engaged on own-account production, such as farmers engaged on subsistence agriculture, may not keep proper accounts. Nevertheless, they, or the households to which they belong, still qualify to be treated as institutional units because it would technically be feasible, at least in principle, to compile accounts for them if required, because they own assets, incur liabilities and engage in transactions in their own right.

9. While institutional units are responsible and accountable for their own actions and decisions, they are not always completely autonomous. For example, corporations which are subsidiaries of other corporations may have no autonomy of action or decision whatsoever on matters of policy, while many corporations which are not formally subsidiaries are also subject to varying degrees of control or influence from other institutional units, including the government. On the other hand, parent corporations enjoy the protection of limited liability and are not fully responsible or accountable for the actions of the subsidiaries they control.

Establishments

10. As already noted, enterprises - that is, institutional units in their capacities as producers of goods or services - may engage in several different kinds of productive activities simultaneously so that industries which are formed by grouping together enterprises on the basis of their principal activities are inevitably too heterogeneous for purposes of input-output analysis. Accordingly, the System recommends that enterprises which engage in more than one type of productive activity should be partitioned into separate establishments each of which engages in only a single kind of productive activity at a single location. Industries are then defined in the System as groups of establishments engaged on the same kind of productive activities. In practice, an establishment may usually be identified with an individual farm, mine, factory, workshop, store, office or other production site in which a single kind of production is carried out. Most enterprises consist of only a single establishment, in which case the establishment and enterprise coincide with each other, but large enterprises are likely to have to be partitioned into two or more separate establishments.

11. The establishment is a unit which is desigend specifically for the analysis of production. There must be a production site in which a specific productive activity can be observed to take place. The establishment must be sufficiently articulated as a production unit to make it possible for meaningful information to be collected about its inputs and outputs, including inputs of labour and capital goods, so that a production account can be compiled for it. The establishment will have its own management which is reponsible for its current production operations, but the competence of its management need not extend beyond the supervision of the production process if the establishment is only part of a larger enterprise. While it is essential that a production account can be compiled for an establishment, the other accounts of the System are irrelevant, or inappropriate, for an establishment because it is not an institutional unit which is capable of owning assets, or incurring liabilities, and for which a balance sheet can be compiled. When an enterprise consists of only a single establishment, the two units coincide in the sense that the production account for the enterprise is identical with that for the establishment, but otherwise they remain quite different kinds of units in principle.

12. An establishment is therefore defined as a production unit consisting of an enterprise, or part of an enterprise, which engages in a single kind of productive activity at a single location. However, in order to make the concept of an establishment more operational, it is necessary to indicate more precisely what is meant by a single activity and a single location. In the case of activities, the main problem is to decide the extent to which activities which produce services for internal consumption within the enterprise should be explicitly recognized and hence treated as separate establishments. In the case of location, the problem is that there are no natural units in which to measure location, so that very different results may be obtained depending upon whether location is interpreted broadly - e.g. administrative regions established for political purposes - or narrowly, e.g. individual blocks within a city, or individual floors within the same building.

13. In order to be able to identify establishments it is essential to draw a distinction between two fundamentally different kinds of productive activities which are carried out within every enterprise, whatever its nature or size. The first type are described as principal or secondary productive activities: these are activities which produce goods or services which are intended for sale on the market or for other uses. The second type may be described as "ancillary" activities which are undertaken specifically in order to provide services which are consumed as inputs into the main activity, or activities, of the enterprise. Ancillary activities are essentially supporting activities which are undertaken not because the enterprise has an interest in them as such, but in order to facilitate the main activity, or activities, of the enterprise. For this reason, some enterprises may find it more efficient to purchase the services in question on the market rather than produce them themselves, so that the incidence of ancillary activities is liable to vary considerably depending upon the general economic environment in which enterprises find themselves.

14. The number of establishments distinguished within an enterprise depends only on the number of principal or secondary activities carried out within the enterprise and the number of locations at which these activities are carried out. Establishments must never be created for ancillary activities./ The outputs from ancillary activities are not recorded in the System, while the inputs into ancillary activities are combined with those of the principal or secondary activities which they support.

Ancillary activities

15. Consider the simplest example of an enterprise which uses a single process of production in a single location to produce a single homogeneous good, or service, for sale on the market or for other purposes. In this case, there is clearly only a single establishment. However, although the main activity of the enterprise may be a well-defined and easily identified process of production, it cannot be carried out in complete isolation as it will inevitably need the support of a number of ancillary activities such as the processing and communication of information, transportation, storage, purchasing, sales promotion, cleaning, maintenance, security, and so on, at least some of which tend to be found in every enterprise, whatever the nature of its production activities.

16. It is not possible to identify ancillary activities simply by referring to a classification of activities by type, such as the ISIC, because a particular kind of activity may be ancillary in the great majority of enterprise but a principal

activity for other kinds of enterprises which specialize in the production of a particular kind of service. It is necessary to examine the activity in the context of the enterprise as a whole in order to determine whether or not it is ancillary. There are four characteristics of ancillary activities which can generally be observed in practice, and which help to identify them as ancillary activities.

17. The first, and most important characteristic, is that the output from an ancillary activity is intended for intermediate consumption within the enterprise, and not for other purposes. For this reason, the output need not be recorded explicitly as it is consumed internally. As already indicated, only the inputs into ancillary activities need to be recorded, the inputs being consolidated with other inputs into the principal activity, or activities, which they support.

18. The second characteristic of an ancillary activity is that it must be a service activity, the only exception to this generalization being the small scale production of power for consumption within the enterprise. For example, even quite small enterprises may be obliged to produce their own electricity by means of a small generator because there is no public supply of electricity. Ancillary activities do not produce goods. The kinds of services which are frequently produced by ancillary activities are listed below.

19. The third characteristic is that each individual ancillary activity is usually conducted on a fairly small scale. Only a small percentage of the total labour force of an enterprise is likely to be employed on any single ancillary activity, and only a small percentage of the total costs are likely to be attributable to any particular ancillary activity.

20. The fourth characteristic of an ancillary activity is that it is universal in the sense that it is liable to be found in any enterprise whatever the nature of its principal activity or activities. Supporting activities which produce goods or services which, for technological reasons, are consumed only by particular types of industries cannot be ancillary.

21. Recapitulating, therefore, ancillary activities are ones which exist to support the main production activity, or activities, of the enterprise by providing services (or power) for internal consumption of a kind which are liable to be found in enterprises of all types, whatever the nature of their main production activities. Production processes are not generally viable without the support of a certain number of ancillary activities and for this reason ancillary activities should not be separated from them to form separate establishments. Although ancillary activities may be collectively indispensable individual activities are not, however, so that the mix of ancillary activities may vary considerably from one enterprise to another.

22. The following is a list of the kind of activities which are likely to be ancillary:

- the keeping of records, files and accounts either in written form or on computers;
- the processing of data or other kinds of information;
- communications within the enterprise and with units outside the enterprise by means of correspondence, memoranda, telephone, telex, direct computer links, etc. or by messengers, couriers, etc.;

- the transportation of goods or persons within the enterprise or to and from locations outside the enterprise;

- the purchasing of materials and equipment;

- the storage, or warehousing, of materials and equipment;

- the promotion of sales; marketing and advertising; market research;

- the cleaning, repair, maintenance, decoration and heating of buildings or other structures;

- the repair and maintenance of machinery and equipment;

- security and surveillance.

23. The above list may not be exhaustive but it illustrates the range of activities which are likely to be ancillary. It also illustrates the virtual impossibility of engaging in any kind of production without having at least some of the activities listed above as internal supporting activities.

24. In principle, certain types of own-account production should never be treated as ancillary, however: in particular, the following kinds of activities cannot be interpreted as ancillary in nature:

- the production of goods for further processing within the same vertically integrated enterprise: e.g. the production of cloth which is then manufactured into clothing;

- the own account production of machinery, equipment or construction;

- research and development; these activities are by no means universal and they are not found in the great majority of enterprises: they also do not provide services which are consumed in the course of current production.

The boundaries to ancillary production

25. As stated above, ancillary activities provide services, or power, for internal consumption within the enterprise. It is possible, however, that an activity which was originally ancillary may start to provide some services for sale to other enterprises also. For example, a computing or transportation department within an enterprise may have the capacity to provide a limited number of services to outsiders. The enterprise may then permit the activity to expand to the point at which it ceases to be ancillary and has to be treated as a secondary production activity of the enterprise. Whenever a department provides any services for sale on the market it can no longer be automatically classified as ancillary, even though its main function may be to provide services internally. The decision whether to treat a particular activity as an ancillary or as a secondary activity can only be taken by evaluating its situation within the enterprise as a whole. It is necessary to take account of factors such as the proportion of the services provided which are sold outside, the size of the activity in relation to the rest of the enterprise, the feasibility of obtaining accounting data covering the activity, including the services provided internally, and so on. It is clear, however, that when an activity sells a half or more of its output, it should not be

treated as ancillary, although this does not exclude the possibility that an activity selling less than half its output should also not be treated as ancillary if it is important enough in other respects.

26. When an activity which was initially treated as ancillary has to be reclassified as a principal or secondary activity, there will be consequential changes in the way in which input-output relationships are portrayed within the enterprise. The output from an ancillary activity is not actually recorded in the production account of an enterprise, or establishment, so that the use of that output within the enterprise is also not recorded in intermediate consumption. Instead, the inputs, both intermediate and primary, consumed by the ancillary activity are consolidated with the other inputs consumed by the principal activity, or activities. However, when the activity is reclassified from an ancillary to a principal or secondary activity, both the output and the consumption of the unsold services must be imputed and recorded explicitly, with a consequential reduction in the value added from the other activity, or activities, consuming the services.

27. Similar kinds of changes in the way in which input-output relationships are portrayed within an enterprise occur when an enterprise decides to close down an ancillary activity and purchase the services on the market instead. There are many ways in which such changes may occur. For example, an enterprise may contract out its accounting, its publicity, its transportation, its cleaning, its security or a host of other services to specialist service producers. While the values of the services purchased on the market may not be exactly the same as the (estimated) values of ancillary services they replace, the consequences of contracting out are predictable, namely,

(1) To increase the intermediate consumption of the enterprise by the value of the services purchased, less the intermediate consumption incurred by the former ancillary activities;

(2) To reduce the value added of the enterprise by a similar amount, and also to reduce its labour force by the numbers previously employed in the ancillary activity;

(3) To increase output, value added and employment in the industry supplying the services.

28. Contracting out ancillary activities therefore changes the cost structure of an enterprise by reducing its own value added and employment while increasing its intermediate consumption. It also redistributes value added and employment away from the enterprise towards the specialist service producer. If contracting out becomes increasingly common in the economy as a whole, it will lead to an expansion of value added and employment in service industries with a corresponding reduction in the industries which contract out. Such changes should not be interpreted as reflecting fundamental changes in the pattern of final demand within an economy. Instead, they reflect changes designed to achieve more efficient ways of organizing production to meet a given pattern of final demand. Contracting out ancillary activities means replacing own-account production by specialist production, which has been recognized since Adam Smith as one of the principal sources of economic growth and development.

The delineation of establishments

29. The number of establishments delineated within an enterprise depends on the number of principal or secondary activities or processes of production carried out and the number of different locations at which they are carried out. Ancillary activities must never be separated from the activities, which they support so that they have no bearing on the number of establishments which need to be distinguished within an enterprise. A separate establishment should be created for each principal or secondary activity, however, and also for each location at which a main activity is carried out. These activities must be treated as different from each other when they fall in different classes of the ISIC. There is, however, no reference frame which can be used to decide when two locations are different from each other.

30. One of the purposes of introducing location into the concept of an establishment is to make it possible to obtain production data by region. For national accounts purposes, differences in location need to be distinguished only to the extent that it is proposed to desegregate the production accounts by region. This suggests that location need not be narrowly defined, separate establishments being distinguished only when the same enterprise carried out the same main activity in quite different geographical regions. For other kinds of statistics than national accounts, location may need to be defined more narrowly, and reference may be made to the text accompanying the ISIC for further discussion of this point. The use of a narrower concept of location is of course acceptable for national accounts purposes even though it may not be necessary.

31. While the purpose of creating establishments is to obtain production units in which only a single activity is carried out at a single location, they must also be units which are sufficiently articulated as to make it possible to distinguish them clearly from other parts of the enterprise to which they may belong so that separate production accounts can be compiled for them. It must be feasible from an accounting viewpoint to record the values of the output produced and inputs consumed, and also to record the numbers employed, the wages and salaries paid, and the fixed assets which are used, consumed and put in place during the accounting period. However, an establishment per se is a unit which only engages in production. It is not an institutional unit and therefore, as a matter of principle, it is not the kind of unit for which the other accounts of the System can be compiled, even though many enterprises consist of only a single establishment in practice.

32. A difficult accounting problem may arise within a multi-establishment enterprise when certain ancillary activities are carried out centrally for the benefit of all the individual establishments which make up the enterprise. These may include activities such as marketing, sales, purchasing, accounting, data processing, computing, transportation, maintenance, and so on. The central unit, which is often also the head office, is likely to have its own separate location away from the establishments which it serves. Even though ancillary activities may be carried out in a separate location, separate establishments are not to be created for them. The costs of the ancillary activities must be allocated over all the establishments for which they provide services. If there are records showing how much of the central costs are attributable to the separate establishments they should be allocated on this basis. In practice, however, the necessary information is not likely to be available in which case the cost of each type of input consumed by the head office or central unit should be distributed over the establishments

served in proportion to the value of the output of each establishment less the value of its intermediate costs excluding the costs of the ancillary activities themselves. If this method is also too difficult to apply, the cost of each central input may be distributed simply in proportion to the value of the outputs of the establishments served.

33. For reasons given earlier, there are two types of activities which may be carried out centrally within a multi-establishment enterprise which are not to be treated as ancillary. These are own-account gross fixed capital formation and research and development. Separate establishments must always be created for units engaged on own-account production of machinery, equipment and construction and for laboratories or other units engaged on research and development. On the other hand, market research, sales promotion and publicity may be treated as ancillary.

Horizontally and vertically integrated enterprises

34. A horizontally integrated enterprise is one in which several different kinds of main activities which produce different kinds of goods or services for sale on the market are carried out simultaneously. It follows from the definition of an establishment that a separate establishment must be identified for each different kind of production carried out in such an enterprise.

35. A vertically integrated enterprise is one in which the different stages of production which are usually carried out by different enterprises are carried out in succession by different parts of the same enterprise. The output of one stage becomes an input into the next stage. Thus, although several different kinds of activities are carried out within a vertically integrated enterprise only the output from the final stage is actually sold on the market. There are numerous examples of vertically integrated enterprises which may be quoted.

36. An enterprise may use its own fishing fleet to catch fish which it then processes into frozen or canned food products, i.e., manufactured products. Similarly, an enterprise may have its own tea plantations on which it grows tea which it then processes and blends into packages of tea for sale to final consumers. A manufacturer of bricks may process clay mined from its own quarries. Many other examples could be cited. A striking feature of the examples just given is that the enterprise do not simply integrate different stages of manufacturing, such as integrating the manufacture of cloth with that of clothing, but integrate agriculture, fishing or mining with manufacturing.

37. From an accounting point of view it is more difficult to partition a vertically integrated enterprise into establishments than a horizontally integrated enterprise, because the outputs from the earlier stages of production are not actually sold on the market. Values have to be imputed, therefore, for the outputs of the earlier stages which then become the intermediate inputs into later stages. Thus, partitioning a vertically integrated enterprise into a series of separate establishments implies imputing values for a whole series of outputs and inputs. Even if adequate data are available on the costs incurred at each separate stage of production, it may be difficult to decide what is the appropriate way in which to allocate the operating surplus of the enterprise among the various stages. One solution is to apply a uniform rate of profit, equal to that for the enterprise as a whole, to the costs incurred at each individual stage in order to estimate the values of the outputs from each stage. Another solution is to treat the operating surplus as all occurring at the final stage when the output is sold.

38. Despite the practical difficulties involved in partitioning vertically integrated enterprises into establishments, the concept of an establishment has been created precisely to deal with enterprises of this kind. The advantages of partitioning other enterprises into establishments are dissipated if large vertically integrated enterprises are not similarly partitioned. At the very minimum, therefore, it is recommended that when a vertically integrated enterprise spans two or more Tabulation Categories of the ISIC, at least one establishment should be distinguished for each Tabulation Category covered. There are 16 Tabulation Categories defined in the ISIC which constitute the first breakdown of activities into broad industry groups such as Agriculture, Fishing, Mining and Quarrying, Manufacturing, etc. In principle, it would be desirable to distinguish separate establishments for each Division of the ISIC, although this may not always be feasible.

Establishments owned by general government

39. Establishments owned by government are to be treated in the same way as establishments owned by persons or corporations. The principles outlined above for ancillary activities and vertically integrated enterprises have to be applied consistently and systematically to government establishments. From a production point of view, central government can be regarded as an extremely large horizontally integrated enterprise, with some vertical integration also, which supplies a wide range of collective and individualized services, and possibly a few goods, to the community as a whole and individual members thereof, through a number of different establishments. Because of its sheer size, central government merits special consideration, although no new matters of principle are involved. State and local government units present somewhat fewer problems because their activities are conducted on a smaller scale. The procedures to be followed when dealing with producer units owned by government may be summarized as follows:

(a) Market producers

A producer unit owned by government which sells some or all of the goods or services which it produces and whose receipts from sales cover more than half of its production costs is treated as a market producer. For example, a municipal swimming pool or a government publishing office may be market producers. A market producer should be treated as a quasi-corporation if its accounts permit its income, saving and capital to be measured separately from government so that transfers of income, or capital, between the unit and government can be distinguished.

If it can be treated as a quasi-corporation it ceases to be part of the Government Sector and is treated in the same way as privately owned corporations. It is possible that a quasi-corporation might have to be partitioned into separate establishments, especially if it operates at more than one location.

Market producers owned by government which cannot be treated as quasi-corporations are likely to be operating on a small scale and units engaged in different kinds of production should be treated as separate establishments.

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(b) Non-market producers

A distinction needs to be drawn between non-market producers owned by government which deliver final goods or services to the community, either individually or collectively, and those which produce goods or services for use by other government units.

(i) Final goods or services

Non-market producers providing final goods or services such as public administration, defence, health and education should be partitioned into establishments using the activity classification given in Divisions 75, 80, 85 and 90 of the ISIC. Agencies of central government may be dispersed over the country as a whole in which case it will be necessary to distinguish different establishments for activities which are carried out in different locations. For national accounts purposes, different establishments are not needed for different schools, hospitals, etc. supplying non-market services within the same local government area, especially if controlled by the latter, but may be needed for other purposes.

(ii) Intermediate and ancillary activities

Certain government agencies or departments supply goods or services without charge to other government agencies or departments. These should be treated consistently with the general principles outlined earlier.

(1) When a government producer supplies goods to other government agencies it should always be treated as a separate establishment. This applies to agencies producing munitions or weapons, printed documents or stationery, roads or other structures and so on. These must always be identified as separate establishments and classified under the appropriate heading of ISIC on two grounds. Firstly, a government which produces its own weapons to supply to its own armed forces is, in effect, a vertically integrated enterprise which spans two or more Tabulation Categories of ISIC. At least one separate establishment must be distinguished in each Tabulation Category therefore. The same argument applies to a government printing office and other goods producers owned by government. A second consideration is that it is never appropriate to treat goods production as an ancillary activity. An activity which supplies goods to an establishment producing services should always be treated as a separate establishment itself.

(2) The situation of government agencies supplying supporting services to other government agencies is less clear; for example, transport pools, computing departments or the like. In such cases, it will normally be appropriate to treat them as ancillary activities whose costs are to be distributed over the various establishments which they serve in proportion to the value of the non-market output of the latter (which will thereby be increased as a result of the additional costs allocated). However, exceptions to this general principle may be envisaged in the case of very large specialized agencies serving central government as a whole - for example, a very large computer or communications agency - for which it may be appropriate to create a separate establishment.

Industries and products

40. Industries are defined in the System in the same way as in ISIC: that is, an industry consists of a group of establishments engaged on the same, or similar, kinds of activity. At the most detailed level of classification, an industry consists of all the establishments falling within a single Class of ISIC and which are therefore all engaged on the same activity as defined in the ISIC. At higher levels of aggregation corresponding to the Groups, Divisions and Tabulation Categories of the ISIC, industries consist of groups of establishments engaged on similar types of activities.

41. In contrast to the previous version of the System, industries are not defined in such a way as to exclude non-market producers. Thus, Division 75 of the ISIC, for example, which consists of (non-market) establishments engaged on Public Administration and Defence and Compulsory Social Security, is treated as an industry in the System alongside all other industries. Of course, the distinction between market and non-market producers continues to be an important feature of the System, but it ought not to be treated as if it were an activity classification. For example, identical health treatments provided by market and non-market producers cannot be classified as different activities on the grounds that they are financed in different ways.

42. The distinction between market and non-market production is based on a different criterion from the nature of activity itself. Establishments may therefore be cross-classified by both types of activity and by the way in which they are financed, and such a cross classification remains an integral part of the System. However, it is not appropriate to try to assimilate the distinction between market and non-market production into an activity classification when it does not relate to the characteristics of the activity itself.

43. As already mentioned, a one-to-one correspondence does not exist between activities and products and hence between industries and products. Certain activities produce more than one product simultaneously, while the same product may sometimes be produced by using different techniques of production.

44. When two or more products are produced simultaneously by a single productive activity they are said to be "joint products". Examples of joint products are meat and hides produced by slaughtering animals or sugar and molasses produced by refining sugar canes. The joint product which accounts for the largest proportion of the receipts from sales is usually described as the "principal product". The other product, or products, can then be described as "by-products". The by-product from one activity may also be produced by other activities, but there are examples of by-products, such as molasses, which are produced exclusively as the by-products of one particular activity. These may be described as "exclusive by-products".

45. The relationship between an activity and a product classification is exemplified by that between the ISIC and the CPC, or Central Product Classification of the United Nations Statistical Office. The CPC is the classification of products adopted in the System. It is a classification which is based on the physical characteristics of goods or on the nature of the services rendered. However, each type of good or service distinguished in the CPC is defined in such a way that it is normally produced by only one activity as defined in ISIC while, conversely, each activity of the ISIC is defined in such a way that it normally produces only one product as defined in the CPC. So far as practically possible, an attempt is made to establish a one-to-one correspondence between the two

classifications. Each category of the CPC is accompanied by a reference to the ISIC class in which the good or service is mainly produced. However, because of the existence of joint products it is not possible, even in principle, to establish an exact one-to-one correspondence between the two classifications.

46. In practice, therefore, the output of an industry, no matter how narrowly defined, will tend to consist of more than a single product. The number of products which are reported as being produced will tend to be further increased if some of the establishments for which data are actually reported contain a secondary activity as well as a principal activity. The principal activity of an enterprise as establishment may be defined as the activity the value of whose output exceeds that of any other activity. The products produced by secondary activities are described as secondary products. They are not the same as the by-products produced by a single activity, although for most purposes secondary and by-products may be grouped together.

47. In principle, the distinction between principal and secondary activities should be irrelevant for establishments which, by definition, should contain only a single activity. However, it has to be recognized that the establishments for which data are actually reported do not always meet this criterion fully, either because of the technical difficulty of separating inter-related or inter-linked activities from each other or because of lack of the requisite data. Thus, at the level of an industry a certain number of secondary products are invariably to be found in practice, depending on the nature of the industry and the extent to which statistical authorities have been successful in identifying establishments properly.

48. Before leaving the subject of classification, it should also be noted that the distinction between "commodities" and "other goods and services" which was introduced in the previous version of the System has to be abandoned. The distinction is one which cannot be recognized in a genuine classification of goods and services based on the characteristics of the goods or services themselves. The distinction has created unnecessary difficulties, especially in terminology, without any positive advantages. In order to bring the terminology of the System back into line with that generally used in economies and economics statistics, the term "commodity" will not be restricted to goods or services produced by market producers but used to refer to goods and services in general, including the individual or collective services produced by government or non-profit institutions. The term "product" is preferred when referring to goods or services which have been produced as outputs from production processes.

INPUT-OUTPUT TABLES

Introduction

49. There are two kinds of input-output tables distinguished in the System. The first consists of the so-called "make" and "use" matrices. The make matrix tracks the total supplies of goods or services available in the economy back to the sources from which they originate - that is, individual domestic industries or imports - while the use matrix shows how these supplies are used up for purposes of final demand or absorbed as intermediate consumption by industries. The matrices play a dual role in the System. First, they have an important statistical function as they provide the accounting framework within which statistics of flows of goods and services can be assembled, organized, balanced and checked against each other.

Second, they provide the basis for deriving the second type of input-output tables recognized in the System, namely square symmetric tables, relating either to products or to industries, which can be used for analytical purposes. Before explaining the format of these matrices in any detail, however, it is necessary to explain how the flows of goods and services are to be valued.

VALUATION OF THE FLOWS IN THE INPUT-OUTPUT TABLES

50. Two price systems are utilized in the System for purposes of valuing flows of goods and services in the input-output tables, namely market prices and basic prices. In input-output tables it is usually necessary to draw a distinction between the market price received by the original producer of a good, i.e., the producer's price, and the market price paid by the eventual user of the same good including subsequent trade margins and delivery charges, i.e., the purchaser's price, but both are essentially market prices. In the case of imports and exports, it is also necessary to distinguish between the f.o.b. price and the c.i.f. price, as explained in chapter ... .

51. As many countries in the world, including most developing countries do not utilize any form of value-added tax, or VAT, and as VAT complicates the valuation of the various flows in an input-output table, it is convenient for purposes of exposition to consider first the valuation procedures to be followed in the absence of VAT. The modifications which have to be introduced when a system of VAT is in operation will then be explained later. The valuation of non-market goods and services is also dealt with in a separate section as the principles involved are quite different from those raised by the valuation of market goods and services.

VALUATION IN THE ABSENCE OF VAT

52. The System recognizes two ways in which the output of a producer may be valued, namely the basic price and the producer's price. These concepts have already been introduced in Chapter ... above, but it is convenient to repeat the definitions at this point.

53. The basic price is the price received by a producer for a unit of a good or service produced as output excluding any tax or subsidy on the product which becomes due for payment as a consequence of its sale or use, a subsidy being treated as a negative tax. It also excludes any delivery costs incurred by the producer of a good when these are invoiced and paid for separately.

54. The producer's price is the price received by a producer for a unit of a good or service produced as output including any tax or subsidy on the product which becomes due for payment as a consequence of its sale or use, a subsidy being treated as a negative tax. It also excludes any delivery costs incurred by the producer of a good when these are invoiced and paid for separately.

55. The difference between the producer's price and the basic price is thus equal to the amount of any tax, or subsidy, levied per unit of output sold or used. A tax on a product is one of two kinds of taxes on production which are distinguished in the System and which are described in detail in Chapter ... . The tax may be a specified amount of money per unit of quantity of the good or service or it may be calculated ad valorem, i.e. as a specified percentage of the price of a unit. Either way, it is uniquely specified and directly observable. A tax on a product

drives a wedge between the price of a unit of output as perceived by the producer, or seller, and the price as perceived by the buyer. The basic price, excluding the tax, measures the amount which the producer retains for himself and is therefore the price which is most relevant to his own decision taking and planning. The basic price is usually the price of which the producer is most conscious and aware and which he therefore finds easiest to report industrial censurer or surveys.

56. When outputs of goods and services are valued at producers' prices, the receipts from sales which are recorded for the producer include the taxes on the outputs. The buyer is recorded as paying the taxes to the producer who then has to remit them to the government as an appropriation out of his gross value added. The taxes are usually actually collected and remitted to government in this way in practice. On the other hand, when outputs are recorded at basic prices, the receipts from sales do not include the taxes on the outputs which therefore do not find their way into the producer's gross value added. It follows that the taxes must be treated as if they were paid directly to government by the buyers without passing through the accounts of the producers or sellers. The buyer therefore has to be recorded as making two separate payments - one of which is the basic price paid to the producer, while the other is the payment of the tax on the product to the government. Thus, when goods and services are recorded at basic prices, the taxes on products which appear in the accounts of the producer are the taxes which he is recorded as paying on his purchases of goods and services from other producers, while the taxes on his outputs do not appear in his production account.

57. The valuation of an imported good or service which is equivalent to the basic price of a domestically produced good or service is the c.i.f. price: this is the price of a good delivered at the frontier of the importing country, or the price of a service delivered to a resident, before the payment of any import duties or other taxes on imports. The valuation of an imported good or service which is equivalent to the producer's price of a domestically produced good or service is the c.i.f. price, plus any import duty or other tax on the imported product which becomes due for payment as a result of the good crossing the frontier and entering into free circulation within the economy or the service being delivered to a resident buyer. This price is sometimes described as the ex-customs price.

58. The "purchaser's price" as used in the System may be defined as follows:

- the purchaser's price is the price paid by the purchaser of a good or service including any additional costs, or delivery charges, which the purchaser incurs in taking possession of a good at the required time and place.

59. When the purchaser buys directly from the original producer or importer, the producer's (or ex-customs) price and the purchaser's price, must be identical except for any delivery charges which may be incurred by the purchaser. Producers' and purchasers' prices must coincide therefore for service production, as services are supplied directly from the producer to the user. When goods are purchased directly from their original producers the two prices will also tend to coincide in most cases in practice. Thus, the distinction between the purchaser's and the producer's price is mainly relevant for goods which pass through the chain of wholesale and retail distribution.

60. Such goods are bought and sold at least twice, and the price which the eventual user of a good pays to a wholesaler or retailer will exceed the price paid by the wholesaler or retailer to the original producer by the amount of the trade

margin, or cumulative wholesale and retail trade margins, or the good. In this case, it should be noted that the purchaser's and producer's price refer to quite different transactions taking place at different times and locations: they are not different ways of valuing the same transaction. They are both market prices.

61. The difference between the purchaser's paid by the eventual user and the producer's price received by the original producer of the same good is composed of three elements:

(1) The cumulative wholesale and retail trade margins on the good; these include any taxes on products levied at the wholesale or retail stage of distribution;

(2) Any nominal holding gains realized on the good while it is held in stock by wholesalers or retailers;

(3) Any transport, storage or delivery charges incurred separately by the eventual user in taking delivery at the required time and place.

62. If the purchaser's price is compared with the producer's price for the same kind of good prevailing at the same moment of time (as distinct from the price actually received by the original producer of the good) the second component is automatically eliminated, but in this case, of course, the two prices do not refer to the same good.

63. A large part of the costs of wholesalers' and retailers' consists of the costs of transporting and storing the goods which they resell, but these costs are, of course, incorporated in the trade margins themselves. There is no necessity to identify separately the transport and storage costs incurred by wholesalers and retailers. Thus, only the transport and storage costs which are separately incurred by the purchaser in addition to the trade margins enter explicitly into the difference between the producer's and the purchaser's price.

64. It should also be noted that the trade margins on the goods sold by wholesalers and retailers which are used in the System to measure the value of the output of services produced by wholesalers or retailers can themselves be measured either at producers' or basic prices in the same way as any other kind of output. Governments often find it both convenient and efficient to levy taxes on products on goods at the point at which they are sold by wholesalers or retailers. There are very many examples of such taxes to be found in practice. Although it may not be the intention of Governments to tax the margins as distinct from the goods sold, it is preferable to treat such taxes as if they were taxes on the margins - i.e. on the output of wholesale and retail services - in the context of the input-output tables. When flows of goods and services are measured at producers' prices in the tables the margins must obviously also be measured at producers' prices, which implies they are also equal to the difference between the purchaser's price and the producer's price. However, when the flows are measured at basic prices, the margins must in turn be measured at basic prices excluding any taxes on products levied at the wholesale or retail stage.

Gross value added

65. The concept of gross value added has been explained in Chapter .... . It is defined as the increase in value between a set of inputs of goods and services and

the set of outputs of goods and services which results from transforming, or consuming, those inputs in the process of producing those outputs. Let there be

m intermediate inputs qi with prices pi

and n outputs Qj with prices Pj

$$\text{then, gross value added} = \sum_{j}^{n} PjQj - \sum_{i}^{m} piqi$$

Thus, gross value added can be defined simply as the inner product of a price vector and a quantity vector of intermediate inputs and outputs in which the quantities of inputs carry a negative sign. The following points should be noted about the economic meaning and significance of value added.

(1) Value added is described as "gross" when the inputs do not include the quantities of the capital goods consumed in the course of production. "Net" value added is obtained by deducting from gross value added the estimated value, at current prices, of capital consumption.

(2) In order for gross value added to be an economically meaningful measure of the creation of value resulting from a process of production, the prices of inputs and outputs must be drawn from the same universe of prices. For example, when the general price level, or the pattern of relative prices, is changing over time, the prices used to value inputs must not form part of a price vector relating to one period of time while the prices used to value outputs form part of a different price vector relating to a different time period. If they are drawn from different price vectors relating to different time periods the so-called "value added" will contain nominal holding gains (or losses) which have nothing to do with the creation of value from production. For this reason, it is particularly important in an inflationary situation to measure work-in-progress and changes in stocks in the way required by the System to avoid the inclusion of nominal holding gains or losses in the measurement of gross value added. Similarly, the prices used to value inputs must not be drawn from a price vector which includes (excludes) taxes on products when the output prices are drawn from a different price vector which excludes (includes) taxes on products. Otherwise, "gross value added" is liable to include revaluations from one set of prices to the other as well as the creation of value by production.

(3) The price and quantity vectors which are used to calculate gross value added are not independent of each other. On the contrary, when individual producers are price takers, the quantities must normally be assumed to be functions of the prices. Whatever the state of the technology available, the choice of the particular production process or activity to be employed depends on the pattern or _relative_ input and output prices confronting the producer. Because vectors of relative prices vary significantly from period to period, and even more so from country to country, a production process which is efficient and profitable in one period, or country, will not be so efficient or profitable in another. For this reason, the production processes used in developing and developed countries, for example, are liable to differ considerably from each other, so that calculating gross value added by revaluing the quantities in one period, or country, at the relative prices of another period, or country, may lead to results which are of limited economic meaning.

Prices used in the input-output tables

66. It is recommended that the flows of goods and services recorded in the input-output tables of the System, including the make and use matrices, should be valued at basic prices. If it is not possible for some reason to use basic prices, then producers' prices may be used instead, although this method of valuation is to be treated as "second best". Basic prices are preferred for several reasons. They are the actual prices which are most relevant for producers and which they may find easiest to report. They also result in more uniform method of valuation across the rows of the tables. Moreover, as explained later, it is not even clear what is the most appropriate way in which to define the producer's price when a system of Value Added Tax is in operation, because the concept of the producer's price is somewhat ambiguous when the tax on the product may be deductible by certain categories of purchasers but not others.

67. As noted in Chapter ... the value of a producer's total purchases of intermediate goods and services at producers' prices includes purchases of trade and transport services, so that the total value is equal to the value of the same goods and services at purchasers' prices. This equality also holds, of course, for total purchases of goods and services by institutional units for final uses. However, the value of the total purchases of intermediate (or final) goods and services at basic prices is equal to their total value at purchasers' prices less the taxes on products paid on those purchases. The taxes paid by the purchasers are shown on a separate row in the input-output tables at basic prices.

THE MAKE AND USE MATRICES

68. The "make matrix" is a matrix which displays the sources from which the supplies of goods and services available in the economy originate. The rows of the matrix refer to products while the columns refer to the resident or non-resident industries which produce them. The product and industry classifications are designed to match each other as closely as possible (as with the CPC and the ISIC), industries being defined in terms of their principal or characteristic products. The entry in each cell of the table shows the value at basic prices of the output of the product, or group of products in question which is produced by the industry in question. Non-resident industries are grouped together their supplies being shown in a single column under "imports". There is no need for the number of products to be the same as the number of industries. For example, although food manufacturing may be shown as a single industry, it may be useful to distinguish two or more different kinds of manufactured food products. It is common for the number of products (i.e. rows) to exceed the number of industries (i.e. columns) so that the make matrix is typically rectangular with more rows than columns.

69. In order to obtain the total value of the supply of product, or group of products, at producers', or market, prices it is necessary to have an additional column showing the net taxes paid on those products (i.e. taxes on products less subsidies on products). The net taxes on products can be sub-divided between net taxes on products of domestic origin and net taxes on imports.

70. The "use matrix" is larger than the make matrix and is composed of four sub-matrices. The first sub-matrix has the same dimensions as the make matrix and shows the purchases of products by industries for purposes of intermediate consumption. It contains the same rows and columns as the make matrix, each cell

of the sub-matrix showing the value at basic prices of that product, or group of products, purchased by the industry in question for intermediate use. This sub-matrix is usually by far the largest of the sub-matrices which make up the use matrix as a whole.

71. The second sub-matrix is an extension of the rows of the first sub-matrix which is obtained by adding colums which show purchases of products for purposes of final uses - household consumption expenditures, government consumption expenditures, gross-fixed capital formation, changes in stocks, and exports. These purchases are also recorded at basic prices.

72. In the original sources from which the data on purchases of both intermediate and final consumption goods and services are obtained - for example, industrial or business surveys, household expenditure enquiries, etc. - the expenditures are generally recorded at purchasers' prices - that is, the prices which the reporting units actually paid to obtain possession of the goods or services. It is necessary, therefore, to transform these data from purchasers' to basic prices. It is not possible to generalize about the best way to carry out these complex transformations as the procedures involved depend very much on the nature of the information available on the sizes of wholesale and retail trade margins. Nevertheless, it is clear tha the calculation of the values of the trade margins can be a technically difficult statistical operation. As margins vary between different categories of purchaser, a complete matrix of trade margins covering both intermediate and final purchases of different kinds of goods may need to be estimated, even though the System does not require such a matrix to be shown explicitly. In addition, in order to complete the transition from purchasers' to basic prices it is also necessary to estimate any transportation or delivery charges which are incurred by purchasers and also the net taxes on products which are paid by purchasers. Of course, if the use matrix is calculated at producers' prices it is not necessary to estimate the values of the net taxes paid on purchases of products, but the major task of estimating the margins and transportation and delivery charges remains, whether the matrices are calculated at producers' or at basic prices.

73. In the use matrix and other input-output tables of the System, economic units, whether producers or final users, which purchase goods from wholesalers or retailers are treated as if they purchased the goods themselves directly from their original producers while simultaneously purchasing the accompanying trade services, as measured by the margins, in separate transactions with wholesalers or retailers. These services are therefore shown in a separate row, or rows within the first two sub-matrices of the use matrix: like other flows in the table, they are shown at basic prices excluding any taxes on products levied on sales by wholesalers and retailers.

74. The net taxes on products paid by purchasers on the goods or services they buy, whether levied on the outputs of the original producers of goods and services or on the outputs of the distributors of those goods, are similarly shown in a separate row of the use matrix, but below and outside the first and second sub-matrices under discussion here. Such taxes do not comprise part of the sales receipts of producers at basic prices and are consequently recorded separately. On the other hand, if the use matrix has to be compiled at producers' prices instead of basic prices, the sales receipts of producers obviously include the net taxes on their outputs.

75. It should be noted that purchasers of goods and services intended for intermediate use cannot be equated with the intermediate consumption of those same goods or services, just as sales are not equal to outputs. Both purchases and sales need to be adjusted for the corresponding changes in stocks.

Let (a) = sales of goods and services produced as outputs;

(b) = purchases of goods and services intended for consumption as inputs;

(c) = the value of the change in stocks of both inputs and outputs held by a producer.

The value of the change in stocks needs to be subdivided into:

(c.1) = the value of the changes in stocks of outputs, including work-in-progress;

(c.2) = the value of the changes in stocks of inputs.

Then output = (a) + (c.1)

while intermediate consumption = (b) - (c.2)

76. Thus, in order to record total output and total intermediate consumption as defined in the System, it is necessary to have separate figures for the value of changes in stocks for outputs and for inputs. If stocks are not subdivided in this way it is not actually possible within the use matrix to identify either the total outputs or the total inputs of individual industries. This information is not available if changes in stocks are shown only as a single column in the sub-matrix for final uses. In order to measure total intermediate consumption as distinct from total intermediate purchases, either each cell of the sub-matrix of purchases needs to be transformed from purchases to consumption, or a separate row needs to be introduced which records the total value of the changes in the stocks of inputs held by producers. The column in the sub-matrix for final uses would then record only changes in the values of stocks of outputs.

77. On the other hand, gross value added can be obtained without sub-dividing changes in stocks.

Gross value added = output - intermediate consumption

$$= (a) + (c.1) - \{b - c.2\} = (a) - (b) = (c)$$

Thus, gross value added may be measured correctly, despite the fact that the columns and rows of the use matrix may actually refer to purchases and sales rather than inputs and outputs.

78. Gross value added and its components are in fact shown in the third sub-matrix of the use matrix which is an extension of the columns of the first sub-matrix obtained by adding rows for each of the components of gross value added. These components are as follows:

(i) net taxes paid on purchases of goods and services for intermediate consumption;

(ii) other net taxes on production;

(iii) consumption of fixed capital;

(iv) compensation of employees;

(v) net operating surplus.

Each of these items is defined in Chapters ... or ... . The net operating surplus is the residual obtained after deducting items (i) to (iv) from gross value added at basic prices. As a residual, or balancing item, it does not measure the value of a set of actual or imputed transactions and it lacks price and quantity dimensions of its own.

79. If the use matrix is calculated at producers' prices instead of basic price, item (i) above is deleted and replaced by net taxes on the goods and services produced as outputs, as these taxes are included in the value of the output, and have gross value added, of the industry. On the other hand, the net taxes paid on purchases of intermediate inputs are an integral part of the value of total intermediate consumption at producers' prices and hence do not enter into gross value added at producers' prices. Items (ii) to (v) are identical, whether the matrix is compiled at basic or producers' prices.

80. The fourth sub-matrix of the use matrix is given by intersection of the columns of the second sub-matrix referring to final users with the rows of the third sub-matrix referring to the components of value added. Most, but not all, of the cells of the sub-matrix are empty, depending upon the exact way in which the use matrix is constructed. However, in the matrix at basic prices it is necessary to record entries for the payment of net taxes on products in respect of purchases of goods and services for final use in the fourth sub-matrix below the total values of final uses at basic prices.

The make and use matrices as accounting frameworks

81. The make and use matrices taken together provide an accounting framework within which data on the supplies and uses of goods and services can be systematically assembled, collated and cross-checked. The make matrix displays information on the total supplies of goods and services emanating from domestic industries or from abroad, while the use matrix shows the disposition of those same supplies over all possible uses - intermediate and final. For these reasons, the make and use matrices are often described as the supply and disposition matrices. The balancing of the total supplies of individual goods and services against their eventual uses is a powerful instrument for ensuring consistency between the flows of goods and services recorded in the different parts of the accounts as a whole. It involves balancing supplies against uses at the level of individual goods and services, or small groups of products, and not simply at an aggregative level. The make and use matrices thus provide a suitable framework to check the reliability of data emanating from quite different sources such as industrial inquiries, household expenditure surveys or merchandise trade statistics.

82. Make and use matrices constitute an integral part of the System. It is recommended that they should be compiled in as much detail as possible. Disaggregation not merely increases the amount of information which subsequently may be utilized for purposes of analysis but should also improve the reliability of

the data as a whole. The consistency checks involved in balancing supplies against uses become more stringent as the product flows themselves become more homogeneous, thus reducing the possibility of fortuitous balancing as a result of compensating errors in the different comonents of some flow.

83. The System does not propose any specific level of disaggregation as a standard or norm for two reasons. Firstly, the structure of industry varies greatly from one country to another. For example, in countries which have few resources in the form of natural deposits of fossil fuels or minerals, it may be sufficient to treat the ISIC category Mining and Quarrying as a single industry and minerals as a single product. In other countries with substantial and varied deposits of fuels and minerals it may be necessary to desegregate Mining and Quarrying into the twelve separate classes distinguished in the ISIC, and possibly to distinguish even greater detail. Given the differences which exist between countries, any international recommendation is inevitably bound to be a compromise which is more or less unsatisfactory in particular areas from the point of view of individual countries by asking either for superfluous detail or insufficient detail depending upon the structure of their economies. The second reason for not specifying any particular level of disaggregation is that there can be no ideal level of disaggregation. In practice, most countries should try to desegregate further whatever level of disaggregation they may have already achieved. In this context, it may be noted that some countries distinguish hundreds of industries and thousands of products.

84. It may not be possible to compile detailed make and use matrices annually if they have to rely on the results of detailed surveys or special inquiries which are conducted only at intervals of several years. In such circumstances, it is still desirable to try to compile suitably condensed, or aggregated, make and use matrices in each of the years intervening between the detailed bench-mark inquiries.

Establishment versus enterprise data

85. The industries which figure in the columns of the make and use matrices of the System consist of groups of establishments. Nevertheless, it is recognized that make and use matrices can also be compiled using enterprise data, and some countries prefer to use enterprise data rather than establishment data for this purpose.

86. Enterprises can be classified by their principal activity, or principal product, in much the same way that establishments are classified by type of activity. As many enterprises consist of two or more separate establishments, it follows that they tend to be more heterogeneous units of production than establishments. Indeed, the whole purpose of using establishments as production units is to try to create units which are not so heterogeneous as enterprises. Thus, when make and use matrices are compiled using enterptrises rather than establishments, it is to be expected that there will be more dispersion in the rows and columns of the make matrix. When a product is produced by a secondary activity which is quite different from the principal activity of an enterprise it will be recorded in the make matrix as being produced by an industry of which it is not a characteristic product, because all the outputs produced by a single enterprise, whatever their nature, have to be recorded in the column to which that enterprise is allocated. The enterprise as a whole must be classified as belonging to one, and only one, industry however many different products it produces, if no attempt is made to break it down into different establishments.

87. Thus, the greater heterogeneity of enterprises as producer units will be reflected in greater dispersion in the flows of goods and services recorded in the rows and columns of the make matrix. Similarly, there will also tend to be more dispersion in the rows and columns of the use of matrix as the column for a single industry may cover a number of quite different production processes when the enterprises of which the industry is composed are engaged on several different types of production. This increased dispersion can be a serious disadvantage if it is proposed to utilize the make and use matrices directly for analyses in which production functions are involved. It also makes the transition from the make and use matrices to the symmetric input-output tables of the System that much more difficult to accomplish in practice.

88. Nevertheless, there may be circumstances, or countries, in which it is extremely difficult, or impossible, to break down enterprises into establishments, in which case the make and use matrices should be compiled using enterprise data. As the basic data on the inputs and outputs of enterprises do not have to be subjected to the kind of processing, adjustment or manipulation which is required when those same inputs and outputs have to be distributed between different establishments of the same enterprise, it can be argued that make and use matrices based on enterprise data give a more firm and realistic picture of the actual working of the economy. Indeed, it can be argued that it is preferable and advantageous to compile make and use matrices in such a way that they depict the flows of goods and services as they actually take place with a minimal amount of adjustment or estimation.

89. Make and use matrices can serve their initial purpose of providing an overall accounting framework within which data on flows of goods and services can be assembled and cross-checked against each other, whether the elementary production units are enterprises or establishments. However, while make and use matrices based on enterprise data may appear to be more realistic or objective than matrices based on establishment data, the data themselves are by no means free from adjustment or manipulation as the balancing of supplies and uses is a form of data processing in which judgement and hypotheses have important roles to play.

THE TRANSITION TO SYMMETRIC INPUT-OUTPUT TABLES

90. The transition from the make and use matrices to symmetric input-output tables involves moving from an accounting tool designed primarily to provide a framework within which statistics can be systematically assembled, organized and collated to an analytical tool which is intended primarily for projections, planning or other policy purposes. The difference is only one of degree or emphasis, however. Make and use matrices can be used themselves for various analytical purposes, while the symmetric tables also impose strong accounting constraints on the data.

The two kinds of tables

91. There are two kinds of symmetric table explicitly recognized in the System one of which refers to products while the other refers to industries. The general format of these tables is similar to that of the use matrix in that they consist of four connected sub-matrices. The first sub-matrix is a square, symmetric matrix of intermediate flows consisting either of inter-product flows, or inter-industry flows, and the general description of these tables as "symmetric" streams from the fact that this sub-matrix is square and symmetric.

92. In the case of the product x product table, row i and column i of the square sub-matrix both refer to the same product, or product group. As in the use matrix, each row shows the various ways in which each product is used up, so that the cell which lies at the intersection of row i and column j shows the amount of product i which is used up as intermediate consumption in the course of producing product j. The second sub-matrix is an extension of the rows of the square matrix which records the final uses of products in its columns. It has the same format as the corresponding sub-matrix of the use matrix. The third sub-matrix is an extension of the columns of the square matrix whose rows show the components of the gross value added generated in the course of producing a given product. An additional row is also included in this sub-matrix showing the imports of each product. The fourth sub-matrix consists of the intersection of the columns and rows of the second and third sub-matrices, most of whose cells are empty.

93. Each row of the product x product table shows how the total supply of a product from domestic production and imports is allocated over all possible uses - intermediate and final. The columns can be interpreted as processes of production which produce only a single product. A crucial property of the symmetric tables is that a one-to-one correspondence between products and processes of production is imposed on the data so that each product is produced by only one process while each process produces only product. The columns of the table also contain cells showing the imports of that product, so that the total for each column gives the total supply of that product from both domestic production and imports. The totals for row i and column i are thus identical as they both refer to the total supply of the same product i. The exact format of the table is given in more detail later, after the valuation of the various flows has been explained.

94. The format of the industry x industry table is the same as that just described, except that the columns and rows refer to industries instead of products or product groups.

Rearranging the data

95. The square symmetric sub-matrices of intermediate flows which make up by far the greater part of the product x product, or industry x industry, input-output tables are obtained by rearranging the data in the make and use matrices. It is necessary to rearrange the data in such a way that the process of production in each column of the table produces only a single product, namely the characteristic product by which that process is identified. The ease, or difficulty, with which this can be accomplished depends to a large extent on the amount of dispersion which is present in the rows and columns of the make matrix. The smaller the dispersion the easier it is to make the transition from the make and use matrices to the symmetric input-output tables. As already explained, if the make and use matrices have been compiled using establishments rather than enterprises as production units, the dispersion ought to be considerably reduced.

96. In principle, an establishment consists of production unit in which only a single kind of production activity is carried out. In most cases, a single type of activity produces only a single product, although a few activities may produce two or more products jointly. An industry which consists of a group of establishments all engaged on the same kind of activity should, therefore, produce only a single product, or narrow group of products.

97. It has to be recognized, however, that even when establishment data are used, many establishments for which data are reported in practice do not conform to the ideal concept of a unit in which only a single activity takes place. It is often too difficult to partition large enterprises into individual establishments each of which produces only a single product as output. Thus, many establishment type units for which data are actually reported may contain secondary activities because of the technical difficulty of separating such activities from principal activities or simply because of lack of information. It is necessary, therefore, to accept the fact that industries based on establishment data tend, in practice, to include a certain number of secondary activities which are not characteristic of those industries and which therefore have to be transferred to other industries in order to reduce the outputs of industries to a single product, or a narrow range of products.

Techniques used to rearrange the data

98. There are various techniques which can be employed to make the transition from the make and use matrices to the symmetric input-output tables. The methods used will be briefly described here in order to give an indication of the problems involved and how they may be solved, but for a full description of all the technical details reference should be made to the separate Manual on Input-Output Tables.

99. In making the transition from the make and use matrices to the symmetric input-output tables, there are, in principle, two similar types of problems to be resolved. The first is to transfer all secondary activities from the industry in which they actually take place to the industry of which they constitute the principal activity. This entails reallocating not only the secondary products associated with each secondary activity but also the inputs attributable to those activities. Secondary products can be immediately identified from the make matrix which records all the different kinds of products produced by a given industry. However, the inputs absorbed in the production of those secondary products are not separately identified in the use matrix as they are consolidated with the inputs into the other activities within a given industry. Information about the structure of the inputs absorbed by particular activities obtained from special industrial inquiries or from engineering sources would be helpful, but such information may already have been fully exploited in compiling the make and use matrices so that other and more mechanical methods of estimation may have to be employed, as outlined below. The second general problem is that created by activities which produce joint products, one of which may have to be treated as the principal product and the other, or others, as by-products. When the product produced as a by-product is the principal product of another activity it needs to be transferred to that activity, together with the inputs which are assumed to be attributable to the production of the by-product. Splitting off the production of by-products in this way may not be merely difficult but also rather artificial if they cannot be separated technologically from the process of production in which they are actually produced.

100. In practice, make and use matrices are compiled at a certain level of aggregation which already distances them from the detailed production processes carried out within each industry. It may be impractical to go down to the level of individual production processes in order to make the necessary adjustments so that more mechanical ways of redistributing secondary products and by-products, together with their associated inputs, may be needed which can be applied at a macro level.

101. One such method is to assume that inputs are consumed in the same proportions by every activity within a given industry, whatever the nature of that activity. This is known as the assumption of an "industry technology". However, the existence of various secondary products at the level of an industry is evidence that several different kinds of activities are being carried out within the industry, as already noted. There is no good reason to assume their input structures will tend to be similar. The assumption of an industry technology is therefore not always realistic and may turn out to yield unacceptable results, at least when applied to fairly aggregated data.

102. An alternative assumption is to assume that the input structure of the activity which produces a given product is the same, no matter in which industry the product is produced. This is known as the assumption of a "product technology". It implies that input structure for a product produced as secondary product is the same as when it is produced as a principal product. As explained in the Input-Output Manual it is only possible to redistribute the outputs and inputs of secondary activities using this assumption if the make matrix, and corresponding sub-matrix of the use matrix, are square. Thus, the make and use matrices have first to be reduced to a format which is the same as that of the intended products/x product or industry/x industry tables. If, therefore, the make matrix is originally rectangular because the number of products distinguished exceeds the number of industries, the products have to be grouped together in order to reduce them to the number of industries.

103. The assumption of product technology is more plausible, a priori, than that of an industry technology. Nevertheless, it has been repeatedly demonstrated that the automatic application of the assumption of a product technology can also lead to results which are unacceptable in practice. Input-output coefficients are sometimes obtained which appear extremely improbable or even impossible. There are numerous examples of the method leading to negative coefficients which are nonsensical from an economic viewpoint.

104. It is not usually possible therefore to rely exclusively on a mechanical method, such as the assumption of a product technology, in order to transform square make and use matrices into symmetric product/x product tables or industry/x industry tables. Such a method can be useful, but only after other adjustments based on supplementary information or informed judgement have been exploited to the fullest extent possible.

Applications and uses of input-output tables

105. The way in which input-output tables may be used for purposes of analysis, projections or planning is well known and will not be elaborated in any detail here. The principal concern here is to ensure that the industry x industry input-output tables which form part of the System are specified in such a way that they are conceptually consistent and properly integrated with the rest of the System, while at the same time satisfying the needs of analysts. Each row and corresponding column of an input-output table may be regarded as the two sides of the production account for an industry whose purchases of inputs and sales of outputs have been suitably desegregated to meet the special requirements of input-output analysis. The rows and columns of the input-output tables therefore conform to general norms for production accounts as specified in chapters ... and ... above. They are compiled in accordance with economic concepts of production and value added, and all the principles governing the measurement of

output, intermediate consumption, changes in stocks, etc. as described in earlier chapters automatically apply to the production accounts embodied in the input-output tables.

106. When the input-output tables are used for analytic purposes, the values of intermediate inputs are divided by outputs to obtain input-output coefficients. Assuming that these can be treated as estimates of the parameters of underlying production functions they can be used for a wide range of analytical purposes. For example, when a vector of final demand is specified by product - as a forecast or projection or as a target - it is possible to use the input-output coefficients to estimate the total supplies of each product which will be required. There are various ways in which this may be done as explained in the economic literature on input-output analysis. In addition, input-output tables provide a framework in which various kinds of structural analysis may be carried out. For example, they may be used to analyse the direct and indirect contributions of particular industries to particular categories of final demand, or the direct and indirect import content of particular kinds of exports, and so on.

FINAL EXPENDITURES AND GROSS VALUE ADDED IN THE INPUT-OUTPUT TABLES

107. The input-output tables of the System consist of the use matrix and the analytical input-output tables obtained after transforming the make and use matrices. These transformations, which were the subject of the previous section, mainly concern the sub-matrix of intermediate transactions which has to be transformed into a square matrix with either industries in both rows and columns, or products in both rows and columns, although the other sub-matrices of the use matrix have also to be adjusted to ensure that their rows or columns match those of the sub-matrix of intermediate transactions.

108. This section focuses on the second, third and fourth sub-matrices which make up the use matrix and the input-output tables. These sub-matrices contain the information on gross value added and final expenditures and are therefore closely connected, both conceptually and in terms of data, with the rest of the System. In particular, gross value added by industry as shown in the use matrix and the industry x industry table has to be consistent with gross value added by institutional sector. The links between the two values added are developed further in a later section of this chapter.

109. The rows and columns of the second and third sub-matrices are specified in Table A. In order to balance total uses and resources, intermediate purchases and sales have to be included in this table, but they are reduced to a single row and single column to total intermediate purchases and total intermediate sales. The full input-output tables are obtained simply by desegregating these two rows and columns to show inter-industry purchases and sales. Table A is largely self-explanatory, but it may be used to develop a number of further points including the main accounting relationships and identities embodied within the table.

Final expenditures

110. Final expenditures are recorded at basic prices in the same way as intermediate purchases and sales. For simplicity, final consumption is shown as a single column in the summary presentation in Table A, but in practice it should be desegregated into at least three, or preferably five, components as follows:

(1) Total household consumption expenditures;

(2) Total consumption ecpenditures of PNPIs serving households, of which:

  2.1 Total expenditures on individual consumption goods and services;

  2.2 Total expenditures on collective consumption services;

(3) Total government consumption expenditures of which:

  3.1 Total expenditures on individual consumption goods and services;

  3.2 Total expenditures on collective consumption services.

Thus, the initial breakdown of consumption expenditures should be according to sector, or subsector, with the distinction between individual and collective consumption expenditures at a second level. The individual consumption expenditures of PNPIs and general government refer to those goods or services which are paid for by PNPIs or general government but distributed to individual households as transfers in kind. Most of the final consumption expenditures of PNPIs and general government consist of their imputed expenditures on the goods or services produced as the outputs of establishments belonging to non-market enterprises which they own themselves. These establishments may be engaged in the production of individual consumption goods or services, such as education or health services or collective services such as public administration or defence. The amount spent on goods and services consumed as inputs in the production of these non-market goods or services are, of course, intermediate purchases which do not figure under final uses. On the other hand, goods or services purchased from market producers for distribution to households without any further processing must be recorded as final expenditures on individual consumption goods and services by PNPIs or general government, i.e. under (2.1) or (3.1) above. For example, they may consist of education, health or transportation services delivered directly to households by market producers but paid for by PNPIs or general government. These goods and services may be either Social Security benefits in kind or social assistance grants in kind.

111. Changes in stock are shown as a single column under final uses in Table A on the assumption that it will not usually be possible to show separate figures for changes in stocks of inputs and of outputs. As explained in the previous section, the terms "total inputs" and "total outputs" should be avoided when they cannot be properly identified, and the sum of the total intermediate purchases and gross value added of a resident industry is therefore described as "total domestic resources" rather than total output.

112. As net taxes on products are recorded as being paid by purchasers when flows are valued at basic prices, it follows that all net taxes on products which become due for payment when a good or service is sold for final uses have to be recorded in the fourth sub-matrix of the input-output tables. Row (2.1) in Table A therefore extends into the fourth sub-matrix: the intersection of this row with each of the columns for final uses shows the total amounts of net taxes on products paid in respect of that category of final demand. As indicated in Table A, it is useful to divide the net taxes on products in row (2.1) into net taxes on purchases of domestically produced goods and services and net taxes on imported goods and services.

The main accounting identities

113. The basic accounting identity for each industry is that:

Gross value added ≅ Output - Intermediate inputs

As already explained, this identity may be rewritten for resident producers in terms of sales and purchases as follows:

Gross value added ≅ Total sales by resident producers
+ Value of the change in all stocks held by residents
- Total intermediate purchases

Adding the c.i.f. value of imports of the same products to both sides of this identity and re-arranging, we have:

Total intermediate purchases (1)		Total supplies including imports (10)
+ Gross value added (2)		+ Value of the change in all stocks (11)
+ Imports c.i.f. (4)		
Total resources (5)	≅	Total uses (12)

114. The numbers in brackets refer to the corresponding items in Table A. A balance between the value of total resources and total uses can be obtained in this way, even when the value of the change in stocks held by the industry is not divided between stocks of inputs and stocks of outputs.

115. Gross value added at factor cost is obtained from gross value added at basic prices by subtracting the net taxes on production paid by the producer; thus

Gross value added ≅ Gross value added at basic prices (2)
of factor cost (2.3) - net taxes on production (2.1) + (2.2)

116. The total taxes on production paid by the producer in the input-output tables at basic prices consist of the net taxes paid on purchases of intermediate products and other net taxes on production. Conceptually, they may be interpreted as the net taxes paid on inputs of all kinds, including labour and capital goods used, as well as intermediate inputs.

117. The ultimate residual in Table A is the operating surplus which is defined as follows:

Net operating surplus ≅ gross value added at factor cost (2.3) - capital consumption (2.31) - compensation of employees (2.32)

118. The sum of the gross values added at basic prices over all industries does not yield an aggregate which is used in the System. On the other hand, the sum of the gross values added at factor cost over all industries is equal to Gross Domestic Product at Factor Cost, one of the principal aggregates of the System.

Input-output tables at producers' prices

119. Although the System recommends the compilation of input-output tables at basic prices rather than producers' prices, some countries may find it more convenient to compile tables at producers' prices, while some countries may wish to compile both tables. It is useful to indicate briefly how the table at producers' prices differs from that at basic prices.

120. Producers' prices include the net taxes on products (i.e. taxes on products less subsidies on products) which become due for payment as a result of the sale or use of the products. As already noted, this implies that the value of total intermediate purchases of a producer or industry is the same at producers' prices as at purchasers' prices. This value exceeds the value of the corresponding total at basic prices by the amount of the net taxes on products paid on purchases of goods and services intended for intermediate consumption.

121. The rows and columns of the second and third sub-matrices in the tables at producers' prices are shown in Table B which has the same format as Table A. The differences between Table A and B all relate to the treatment of taxes on products, including taxes on imports. The logic behind the difference in treatment may be summarized as follows.

122. When transactions are valued at basic prices the net taxes on products which become payable as a consequence of those transactions are excluded from the receipts of the seller and treated as being paid by the purchaser directly to the government. When transactions are valued at producers' prices the net taxes on products which become payable are included in the receipts of the seller and are therefore treated as being paid to the government by the seller. It follows, therefore, that gross value added at producers' prices

= gross value added at basic prices

+ net taxes on products on outputs

- net taxes on products on intermediate inputs

123. In effect, the net taxes on inputs contained in row (2.1) of Table A are deleted and replaced by net taxes on outputs in the row which is also numbered (2.1) in Table B. Otherwise, the components of gross value added are unchanged, and it can easily be proved that the net operating surplus is unchanged whether it is derived residually from gross value added at producers' prices or from gross value added at basic prices. The relationships involved have already been illustrated at the end of Chapter ... above.

124. The other difference between Tables A and B is that net taxes on imports have to be added to imports valued c.i.f. to obtain imports valued at ex-customs prices (i.e. the equivalent of producers' prices). However, instead of showing a single row for imports at ex-customs prices, it is more useful and informative to show imports c.i.f. and net taxes on imports separately. For this reason, Table B

contains an additional row (5) for net taxes on imports, while continuing to show imports valued c.i.f.

125. Although producers' prices are market prices, the sum of the gross values added over all resident industries is not equal to Gross Domestic Product at Market Prices as defined in the System. Aggregating over industries leads to the following relationship using the reference numbers given in Table B.

The total of the gross values added for all industries at producers' prices, or $\sum (2)$ = Total final uses - total imports at ex-customs prices, or $\sum(13) - \sum(7) - \sum\{(4) + (5)\}$

126. In the System, however, GDP at market prices is defined as total final uses at market prices (producers' prices or purchasers' prices) less total imports valued c.i.f. GDP at market prices is therefore obtained by adding total net taxes on imports, or (5), to both sides of the above identity. It can be seen from the left-hand side of the identity that GDP at market prices must equal the sum of the gross values added over all industries at producers' prices plus total net taxes on imports.

The relationship between producers and basic prices

127. The taxes levied on products often vary between different categories of purchasers. For example, it is common to levy lower taxes on products sold to producers for use in production than on the same products sold to households or other final users. Similarly, exports of goods or services are frequently exempt from the taxes which resident purchasers have to pay on purchases of the same goods. The varying incidence of taxes on products is therefore likely to be a source of significant variation in the producers' prices charged for sales of the same product as recorded in the same row of input-output table. Most practical applications of input-output analysis require goods and services to be valued as homogeneously as possible so that input-output tables at basic prices are generally preferred to tables at producers' prices on these grounds.

128. However, it should not be assumed that basic prices are constant. Considerable variations in prices may persist, even in the same market, if buyers and sellers are badly informed, and if search costs are high. Moreover, economic theory suggests that profit maximizing producers will deliberately charge different prices to different categories of purchasers to the maximum extent that the market permits. Price discrimination is, in fact, extremely common in most economies, especially in services markets because services cannot be retreaded after purchase in the way that goods can. Producers are therefore liable to charge higher basic prices to purchasers who are exempt from paying taxes on products. The prices charged in "duty-free" shops in airports are a good example of this practice. The same practice can be observed in the co-called "black economy" where one of the main incentives for producers to conceal their activities from the tax authorities is that they are able to charge their customers higher basic prices than if the appropriate taxes on their products were paid. Thus, the basic prices charged to different categories of customers are likely to vary inversely with the rates of tax paid by the customers. When basic prices are negatively correlated with tax rates in this way, the variation in the producers' prices may be much less than might be expected from the variation in the tax rates themselves, while basic prices may vary nearly as much as producers' prices. Subtracting the tax on a

product from the producer's price does not necessarily indicate what price the producer would actually charge to the purchaser if the tax were to be abolished, and basic prices should not be interpreted in this way. The basic price is the actualy transaction price from the point of view of the producer, or seller. This price is lower than the price paid by the buyer when a tax is levied on the transaction, but it does not follow that this is the price that the producer would charge if the tax were abolished. For this reason, it is not advisable to interpret basic prices as if they were independent of the taxes on products.

The valuation of non-market goods and services

129. The goods and services produced by non-market producers have no market prices. While some of them may be sold at nominal prices which are well below their average costs of production, such prices are quite arbitrary and they cannot be used for the purpose of valuation.

130. By convention, the value which is assigned to the output from non-market production is equal to the sum of the costs incurred in producing that output: that is, the sum of:

(1) The value at purchasers' prices of the purchases of goods and services intended for intermediate consumption plus the value of the change in stocks of intermediate inputs;

(2) The compensation of employees paid;

(3) The consumption of the fixed capital assets utilized;

(4) Net taxes on products, if any.

131. The net operating surplus is tacitly assumed to be zero, although the notion of a surplus accruing from production has little meaning anyway in a situation in which output cannot be valued independently of the value of the inputs used to produce it.

132. Although this method determines a value for the output from non-market production, it does not necessarily follow that average prices can be calculated for the goods or services produced. If a process of production produces more than one type of non-market good or service, there is no way of allocating the total costs of production among different types of output, so that the implicit average prices cannot be derived. A further problem is that it may be difficult, or even impossible, to identify the quantities of certain outputs, especially in the case of collective services produced by government units or NPIs. Thus the fact that precise values may be assigned to the total outputs of non-market producers does not generally ensure that average price can be associated with those outputs.

133. In the absence of objective market prices for outputs, there can be no meaningful measure of value added as such. However, deducting the value of intermediate consumption from the conventional value of output implies that "gross value added" is equal to compensation of employees plus consumption of fixed capital and this is taken as the conventional measure of gross value added from non-market production in the System. No distinction can be drawn between gross value added at market prices and gross value added at factor cost for non-market output.

VALUATION INCLUDING VAT

Introduction

134. A number of countries have adopted some form of Value Added Tax, or VAT, and the number is expected to increase. Value added tax is a wide-ranging tax which affects all the flows of goods and services in an input-output table directly or indirectly. It is necessary, therefore, to consider how VAT is treated in the input-output tables and in what ways it modifies conclusions reached in previous sections on the valuation of flows and the concept and measurement of value added itself. In some countries, VAT may replace other forms of taxes on products completely, but in other countries some other types of taxes on products may be retained in addition to VAT: for example, excise duties on alcoholic drinks or tobacco. In addition, many taxes on production, other than taxes on products, may also be retained.

135. VAT is a tax linked to production and imports which is collected in stages by enterprises but which is ultimately borne by the final purchaser of the goods or services. Under a VAT system, a producer is required to charge a certain rate of tax on the goods or services which he sells. However, he is not required to pay to the tax authorities the full amount of tax which he has charged or invoiced to his customers because he is able to deduct the amount of VAT which has been invoiced to him on the goods or services which he has purchased himself for use in production. The latter consist of goods or services which may be used for intermediate consumption or capital formation. Thus, the producer is obliged to pay only the difference between the VAT on his own output and the VAT on his inputs - hence, the term Value Added Tax. However the producer is not obliged to charge VAT on goods sold to non-residents, i.e. exports. Moreover, the rate of VAT which is charged to resident purchasers may vary according to the type of good or service or possibly according to the kind of purchaser.

136. In the case of a producer subject to the standard VAT system, the following terminology is used:

(a) VAT invoiced by the producer: this is the amount of the VAT which the producer calculates at the rate applying to the good or service which he produces and sells which he itemizes separately on the invoice, or bill, which he charges the purchaser;

(b) Deductible VAT on intermediate inputs: this is the VAT which is invoiced to the producer on the goods or services which he purchases for use as intermediate inputs and which he is able to deduct for this reason;

(c) Deductible VAT on purchases on capital goods: this is the VAT which is invoiced to the producer on the capital goods which he purchases or other goods which he puts into stock and which he is able to decuct for this reason;

(d) VAT payable by the producer on his current production: this is the difference between the VAT invoiced by the producer and the VAT deductible on his intermediate inputs - that is (a) - (b);

(e) VAT paid by the producer: this is equal to the VAT invoiced by the producer less VAT deductible both on intermediate inputs and purchasers of capital goods - that is (a) - (b) - (c);

(f) Non-deductible VAT: this is equal to the VAT invoiced by the producer to the purchaser which the purchaser is unable to deduct.

The gross and net systems of recording VAT

137. There are two different ways in which VAT can be recorded in the input-output tables and in the System generally: these are described as the "gross" and the "net" systems.

138. In the gross system, the sales of producers are recorded including VAT invoiced by the producer, while purchases are similarly recorded including invoiced VAT, whether or not that VAT is deductible by the purchaser. Thus, VAT invoiced to the purchaser is included in the purchaser's price even when the purchaser is a producer who is subsequently able to deduct it from the amount of VAT which he has to pay to the tax authorities in respect of the VAT which he invoices on his own sales. For input-output purposes, the gross system has the advantage that sales of goods and services for domestic use are valued consistently across the row of an input-output table because sales for intermediate use, or for capital formation, are recorded including invoiced VAT in the same way as sales for final consumption. However, sales to non-resident, i.e. exports, exclude VAT so that the method of valuation is not completely uniform across a row.

139. There are some serious disadvantages, however, which result from using the gross system. The gross system does not record the amounts of VAT actually paid by producers and for this reason it can be argued that the method distorts reality to some extent. This applies not only to purchases for intermediate consumption but also to some purchases for final uses; in particular, expenditures on gross fixed capital formation on which VAT is usually deductible. More decisively, however, practical experience with the operation at VAT over many years in a large number of European countries has shown that it may be very difficult, if not impossible, to utilize the gross system of recording because of the way in which business accounts are compiled and data are collected in most countries. Sales are normally reported excluding VAT invoiced by the producers in most industrial inquiries and business surveys, while purchases of goods and services are similarly recorded excluding deductible VAT. Thus, in order to compile input-output tables using the gross system of recording extensive and difficult imputations and estimations would be needed in most countries. The gross system has been tried and abandoned in a number of countries. For these reasons the System does not recommend the use of the gross system.

140. The System therefore proposes that the net system of recording should be adopted instead. In the net system:

(1) Output is valued excluding VAT invoiced by the producer, while imports are also valued excluding invoiced VAT;

(2) Total purchases of goods and services for intermediate or final uses are recorded including non-deductible VAT.

Producers', purchasers' and basic prices under the net system of recording VAT

141. Under the net system of recording adopted in the System, VAT is recorded only when the purchaser is not able to deduct it. This means that most VAT is recorded when purchases are made for final consumption, but some small amounts may also be

paid by producers in respect of certain kinds of purchases on which the VAT is not deductible.

142. Under the net system of recording VAT, the producer's price is the price received by the producer excluding invoiced VAT but including any other tax or subsidy on the product which becomes due for payment as a consequence of the sale. It includes any transport or other delivery charges incurred by the producer for which he does not charge separately. The import price corresponding to the producer's price is the ex-customs' price which is the c.i.f. price plus any tax or subsidy which becomes due for payment as a result of crossing the customs frontier but excluding invoiced VAT.

143. Under the net system of recording VAT, the purchaser's price is the price paid by the purchaser of a good, including any delivery charges incurred by the purchaser, but excluding deductible VAT. In other words, the purchaser's price includes non-deductible VAT.

144. The difference between the purchaser's price paid for a good and the producer's price for the same good at the time it was sold by its original producer comprises four elements therefore:

(1) Non-deductible VAT paid by the purchaser;

(2) The cumulative wholesale and trade margins on the good;

(3) Any nominal holding gain, realized on the goods while it is held in stock by wholesalers and retailers;

(4) Any transport, storage or delivery charges incurred separately by the purchaser.

145. The basic price is defined in the same way whether or not a system of VAT is in operation: it is therefore defined as in paragraph ... above. Under the net system of recording VAT, the basic price is therefore equal to the producer's price of a good or service minus any tax on the product which becomes due as a consequence of its sale, either by its orginal producer or by a wholesaler or retailer, a subsidy being treated as a negative tax. By definition, the basic price excludes all taxes on products which become due as a consequence of the sale including invoiced VAT.

The input-output table at basic prices when there is VAT

146. The input-output table at basic prices in the presence of VAT is identical in format with that without VAT which was given in Table A above. In order to include VAT in the table, non-deductible VAT should be recorded in row 2.1 of Table A which refers to payments of taxes on products, most of the VAT being recorded in the cells at the intersection of this row and the columns for final consumption. As explained above, recording the receipts of producers at basic prices implies that all taxes on products, including VAT, are paid by purchasers directly to government without passing through the accounts of producers or sellers. The only VAT which has to be paid on purchases of goods and services is non-deductible VAT, and these payments are recorded in row 2.1 together with all other taxes on purchases of goods and services. Thus, there is no change required in the format of Table A when a system of VAT is in operation. However, row 2.1 has to be understood as

including payments of non-deductible VAT in respect of goods or services purchased for either intermediate or fixed use as well as other taxes, or subsidies, on goods or services purchased.

147. One of the main advantages of the input-output tables at basic prices is that the prices are defined in exactly the same way, and the format of the table is the same, whether or not there is a system of VAT in operation. On the other hand, VAT compplicates the tables at producers' prices both in theory and in practice.

The input-output table at producers' prices using the net system of recording VAT

148. The producer's price, as defined above, is equal to the price received by the producer

excluding invoiced VAT

but *including* other net taxes on products on the goods or services produced as outputs.

Conceptually, therefore, it can be regarded as a hybrid between a market price and a basic price as it includes some taxes but not others. The difficulty stems from the fact that the concept of the market price is itself somewhat ambiguous when certain taxes which are paid on products are, in effect, subsequently reimbursed by the Government to some purchasers, but not others, by permitting them to deduct the amounts paid from other tax payments. When the producer sends his invoice to the purchaser he may not even know whether the latter can deduct the VAT or not.

149. The format of the input-output table at producers' prices when there is a system of VAT is summarized in Table C. In the first two sub-matrices referring to intermediate and final purchases of goods and services transactions in the input-output tables at producers' prices are recorded excluding invoiced VAT. The total values of the purchases made by industries, or final users, are then shown both excluding and including the non-deductible VAT on these purchases. This is done by inserting an additional row for non-deductible VAT below the row containing total purchases at producers' prices excluding invoiced VAT. This row, which contains all payments of non-deductible VAT, extends across the two sub-matrices covering intermediate and final purchases. However, the row is included within the sub-matrix of intermediate transactions because non-deductible VAT paid on intermediate purchases must be included in the value of *total* intermediate consumption in the same way as other (non-deductible) taxes on products paid on inputs in the input-output table at producers' prices. In practice, most systems of VAT are deliberately designed so that most non-deductible VAT falls on final expenditure especially those of households, rather than on intermediate consumption.

150. Apart from the additional row recording payments of non-deductible VAT, the format of the input-output table at producers' prices is essentially the same as when there is no system of VAT in operation. Gross value added at producers' prices does not include any VAT but it does not include net taxes on products, other than VAT, paid on the outputs of industries.

151. In the net system of recording VAT outlined above the *individual* transactions in the sub-matrices referring to intermediate and final purchases are all recorded excluding invoiced VAT, although the *total* purchases for each industry or category of final demand also include their payments of non-deductible VAT. In effect, therefore, payments of non-deductible VAT are treated in a similar way to trade margins, being excluded from the individual transactions but included in the

totals. One of the characteristic factors of a VAT system is that the VAT payable varies between different categories of purchaser - especially between intermediate and final purchases. By excluding invoiced VAT completely from the recorded purchases of individual goods and services, the net System has the advantage of eliminating those price variations within a single row of the table which are attributable to the differing incidence of VAT between different categories of purchases.

152. If VAT accounts for the bulk of the taxes on products levied in an economy, which is usually the case when a VAT system is adopted, it can be inferred that the input-output table at producers' prices using the net system of recording VAT may be quite similar in practice to the input-output table at basic prices. In such a situation, however, it may be preferable to treat all taxes on products in a consistent manner by excluding all of them from prices - in other words, to value at basic prices.

153. Finally, it may be noted that the total of the gross values added for all industries at producers' prices under the net system of recording VAT falls short of GDP at market prices not only because of net taxes on imports but also by the total value of non-deductible VAT paid on final uses. This partly reflects the fact that the producer's price excluding invoiced VAT is a hybrid between a full market price (including invoiced VAT) and the basic price which excludes all taxes or subsidies on products. It is not suggested that gross system of recording VAT should be adopted instead of the net system for this reason, but the wide discrepancy between aggregate value added and GDP is symptomatic of the conceptual and practical valuation problems created by a system of VAT.

The gross-classification of gross value added by industry and by institutional sector

154. In order to establish a bridge between the production accounts by industry based on establishment data and the production accounts by sector based on enterprise data, the System requires a cross-classification of gross value added and its main components by type of industry and type of sector. Establishments can be classified both by type of activity and according to the sector, or subsector, to which the enterprise of which they form part belong. In practice, most enterprises contain only a single establishment anyway, but when a large enterprise contains two or more establishments they should all be allocated to the same institutional sector, namely that in which the enterprise as whole is classified.

155. The System requires the following data for establishments to be cross-classified by type of activity, or industry, and by type of sector:

(1) Gross value added at market prices;

(2) Total taxes, less subsidies, on products paid on outputs plus other net taxes on production;

(3) Consumption of fixed capital;

(4) Compensation of employees;

(5) Net operating surplus.

If gross value added is measured at mixed prices - that is, output at basic prices less inputs at purchasers' prices - item (2) above consists only of other net taxes on production.

156. In practice, a separate table or matrix is needed for gross value added and for each of its components, as the data for each item have to be classified two ways, or in two dimensions. The set of tables as a whole can then be viewed as a three-dimensional table or matrix in which the entries in each cell are simultaneously classified by type of item, by type of activity and by type of institutional sector, or subsector. It is thus possible to map the flows of income generated by engaging in production from the type of activity, or industry, in which they are earned to the type of institutional sector to which the recipients of the income flows belong. In this way, the links between the input-output tables and the main accounts of the System are greatly strengthened.

Annex

A Note on the Valuation of Expenditures, Outputs and Gross Value added

157. The purpose of this note is to clarify the relationships between final expenditures, outputs and gross values added under different systems of valuation.

158. Consider, initially, a closed economy without imports. The value of GDP at market prices may then be obtained as the sum of final expenditures at market prices or, alternatively, as the sum of the gross values added at market prices for all industries or sectors, the two totals being identical. If, on the other hand, flows of goods and services, intermediate as well as final, are systematically valued at basic prices instead (the so-called "approximate" basic prices of the existing Blue Book) the identity between total final expenditures and the sum of the gross values added continues to hold, despite the assertion to the contrary made in paragraph 4.107 of the existing Blue Book. Indeed, the identity must hold for any set of prices, so long as all flows of goods and services are consistently valued at the same set of prices. The identity follows from the basic definitions and axioms of national accounting.

159. The identity does break down, however, if outputs are valued at a different set of prices from those used to value intermediate inputs. For example, the identity does not hold if the outputs and final expenditures are valued at basic prices while intermediate inputs are valued at market prices, and it is the use of mixed prices, not "approximate" basic prices, which explains the breakdown of the identity noted in paragraph 4.107. It is necessary to consider, therefore, what is the justification for valuing inputs at different prices from outputs and final expenditures when this procedure leads to measures which, strictly speaking, are not measures of value added and which also lead to the breakdown of accounting identities.

160. There are two alternative approaches to the definition of GDP at basic prices.

(1) The first approach is to treat GDP at basic prices as an aggregate in its own right which is obtained by systematically valuing all flows of goods and services in the economy - whether inputs, outputs or final expenditures - at basic prices. Looked at from the expenditure side, it is clear that GDP defined in this way is equal to GDP at market prices less those taxes on products which fall on final expenditures, subsidies being treated as negative taxes. At the level of an industry, gross value added at basic prices is equal to gross value at market prices minus net taxes on outputs plus net taxes on inputs. GDP at basic prices defined in this way is not part of the existing System, and it is not suggested that it should become one of the main aggregates of the System. However, such an aggregate can stand alone and poses no conceptual or accounting problems because it is based on a single vector of actual transaction prices.

(2) The second approach, which is the one adopted in the present Blue Book, is to treat GDP at market prices as the point of reference, or bench-mark, and to derive GDP at basic prices from it. On this approach, it is natural to define GDP at basic prices as GDP at market prices less all taxes on products and not simply those taxes on products which fall on final expenditures. At the level of GDP as a whole this appears a neat and tidy concept, but it does not lend itself to disaggregation by type of final expenditure or by industry or sector.

161. The difficulty is that there is no directly observable vector of prices which generates GDP at basic prices on the second definition. The solution adopted in the present Blue Book is to postulate the existence of a hypothetical vector of prices (the so-called "true" basic prices) which would lead to the appropriate desegregated measures of final expenditures, outputs and values added. The hypothetical prices postulated in the Blue Book can be calculated, at least in principle, by combining a standard input-output model with a simple, but rather unrealistic, theory of tax incidence in which all taxes or subsidies on products are assumed to be passed on in full to purchasers. Conceptually, therefore, GDP at basic prices, whether considered as the sum of final expenditures or as the sum of gross values added, is defined in the present Blue Book at these hypothetical "true" basic prices.

162. It is, however, possible to obtain the gross value added of each industry, or sector, at "true" basic prices by subtracting intermediate expenditures at market prices from output at (actual) basic prices, and the Blue Book specifically recommends this procedure. In the Glossary, it is stated that the "gross value added of industries in approximate basic values is equal to their gross output in approximate basic values less their intermediate inputs in purchasers' values." In practice, this is identical with gross value added in "true" basic prices, although the fact that gross value added is the same whether calculated at "approximate" or "true" basic prices does not appear to be stated explicitly anywhere in the Blue Book including the Glossary. Indeed, "true" basic prices are actually defined as those prices which would generate gross value added at "approximate" basic prices as just defined if they were to be used systematically to value all inputs and outputs. This can be seen by comparing equation 4.12 with equation 4.15: the gross value added (w+t) which is used to calculate the "true" basic prices in equation 4.12 is identical with the gross value added (w+t) which is derived at "approximate" basic prices in equation 4.15.

163. Thus, while gross value added by industry at "true" basic prices can be measured quite easily by using mixed prices (basic prices for outputs and purchasers' prices for inputs), all the actual flows of goods and services themselves which make up the inputs, outputs and final expenditures cannot similarly be expressed at "true" basic prices without complex calculations which it is patently totally unrealistic to expect to be undertaken as part of normal national accounting procedures. Moreover, while the use of mixed prices appears to solve the problem of measuring value added, the price paid is the breakdown of the identity between total final expenditures and the sum of the gross values added by industry, or sector, at mixed prices.

164. Exactly the same arguments and conclusions apply when "factor" prices are used instead of basic prices, and it is not necessary to repeat them in detail. However, whereas a basic price is an observed price, it is doubtful whether a "factor" price is even an operational concept when it has to be obtained by subtracting from the market price of a unit of output taxes which do not vary with the level of output. Assume, however, for purposes of argument that factor prices can actually be measured. It is clear that if all goods and services were to be systematically valued at these factor prices, the identity between final expenditures and total gross values added would continue to hold, while the vluae of GDP at those factor prices would be equal to GDP at market prices less those taxes on production which fall on final expenditures. Alternatively, if GDP at factor cost as traditionally defined is required - i.e., GDP at market prices less all taxes on production - it is necessary to resort to the use of mixed prices at the level of individual industries and to postulate the existence of hypothetical

"true" factor prices in order to obtain a vector of prices in terms of which the value added can be justified theoretically. The same dilemma is therefore posed as for basic prices: either the fundamental accounting identities break down as a result of using mixed prices or it has to be accepted that the requisite prices, the "true" factor prices, are purely hypothetical.

165. The general conclusion to be drawn is that GDP at factor cost should be treated as a component, or sub-aggregate, of GDP at market prices, which does not, in itself, represent a useful alternative measure of value added. As suggested in chapter ... it is better to interpret GDP, or gross value added, at factor cost, as an income measure rather than a production measure. As there is no observable vector of prices which generates GDP at factor cost directly it is misleading to interpret it as an alternative measure of value added when it is essentially a residual measure, contained within GDP at market prices, of the incomes accruing to the factors of production employed within the enterprise.

166. Finally, it should be noted that the concepts of "true" basic and factor prices are not well grounded theoretically when the explanatory variables from which they are calculated are not exogenous measures of cost because they include the net operating surplus, an accounting residual. Equation 4.13 of the Blue Book is clearly an accounting identity which defines w as a function of p, t and x, and not an equation which expresses p as a function of w, t and x. The status of equations 4.11 and 4.12 which treat w as if it were an exogenous variable is therefore dubious from a theoretical point of view. In practice, it is not possible to calculate what prices would be in the absence of taxes on production as their true incidence is unknown, so that the so-called "true" basic and factor prices of the System are only artefact which have no useful role to play in the System.

167. Thus, there remain basically two economically meaningful and useful aggregates: GDP at market prices which measures gross value added using a single vector of observed prices to value all the relevant flows of goods and services in a consistent manner, and GDP at factor cost which should be treated as a measure of factor incomes rather than value added, as such.

The inclusion of imports

168. The above note assumed a closed economy. When there is foreign trade, imports and exports should be measured consistently with other flows. The existing definition of GDP at market prices, however, values imports excluding taxes on imports (para. 6.7). The inevitable consequence of using mixed prices instead of a single, consistent method of valuation is that the fundamental identity between GDP as the sum of final expenditures, less imports, and GDP as the sum of gross values added by industry or sector, breaks down. This breakdown, which is implicitly acknowledged in paragraph 6.6 of the Blue Book, is a source of some confusion or irritation among users.

169. It is obvious that imports differ in several important respects from domestic production and that taxes on imports differ from taxes on domestic production, but some explanation is needed to justify the exceptional valuation accorded to imports in the definition of GDP at market prices. Of course, if GDP at market prices were to be defined as the sum of the gross values added at market prices over all producers, GDP at factor cost would be equal to GDP at market prices less all taxes on domestic production (as distinct from all taxes on production plus taxes on imports).

TABLE A

Summary Input-Output Table at Basic Prices

(in the absence of taxes on value added)

Resources (in rows)

(1) Total intermediate or final purchases of goods and services valued at basic prices.

(2) Gross value added at basic prices, of which:

  (2.1) Net taxes on purchases of goods and services, of which:

    (2.11) Net taxes on purchases of domestically produced goods and services

    (2.12) Net taxes on purchases of imported goods and services

  (2.2) Net taxes on production, other than taxes on products

  (2.3) Gross value added at factor cost, of which:

    (2.31) Capital consumption

    (2.32) Compensation of employees

    (2.33) Net operating surplus

(3) Total domestic resources at basic prices: (3)=(1)+(2)

(4) Imports of similar products valued c.i.f.

(5) Total resources at basic prices: (5)=(3)+(4)

Uses (in columns)

(6) Total sales for intermediate uses at basic prices

(7) Sales for final consumption at basic prices

(8) Sales for gross fixed capital formation at basic prices

(9) Sales for exports at basic prices

(10) Total supplies at basic prices: (10)=(6)+(7)+(8)+(9)

(11) Value of changes in all stocks held by the industry

(12) Total uses at basic prices: (12)=(10)+(11)

Note: (5)=(12)

TABLE B

Summary Input-Output Table at Producers' Prices

(in the absence of taxes on value added)

Resources (in rows)

(1) Total intermediate on final purchases of goods and services valued at producers' prices.

(2) Gross value added at producers' prices, of which:

- (2.1) Net taxes on products on the outputs
- (2.2) Net taxes on production other than taxes on products
- (2.3) Gross value added at factor cost, of which:
  - (2.31) Capital consumption
  - (2.32) Compensation of employees
  - (2.33) Net operating surplus

(3) Total domestic resources at producers' prices: (3)=(1)+(2)

(4) Imports of similar products valued c.i.f.

(5) Net taxes on imports

(6) Total resources at producers' prices: (6)=(3)+(4)+(5)

Uses (in columns)

(7) Total sales for intermediate uses at producers' prices

(8) Sales for final consumption at producers' prices

(9) Sales for gross fixed capital formation at producers' prices

(10) Sales for exports at producers' prices

(11) Total supplies at producers' prices: (11)=(7)+(8)+(9)+(10)

(12) Value of changes in all stocks held by the industry

(13) Total uses at producers' prices: (13)=(11)+(12)

Note: (6)=(13)

TABLE C

Summary Input-Output Table at Producers' Prices

Net system of recording VAT

Resources (in rows)

(1) Total intermediate or final purchases of goods or services valued at producers' prices, excluding invoiced VAT.

(2) Non-deductible VAT on intermediate or final purchases.

(3) Total intermediate or final purchases of goods or services valued at producers' prices excluding deductible VAT: (3)=(1)+(2).

(4) Gross value added at producers' prices, of which:

- (4.1) Net taxes on products on outputs, excluding invoiced VAT;
- (4.2) Net taxes on production other than taxes on products;
- (4.3) Gross value added at factor cost, of which:
  - (4.31) Capital consumption;
  - (4.32) Compensation of employees;
  - (4.33) Net operating surplus.

(5) Total domestic resources at producers' prices excluding invoiced VAT: (5)=(3)+(4).

(6) Imports of similar products valued c.i.f.

(7) Net taxes on imports, excluding invoiced VAT.

(8) Total resources at producers' prices, excluding invoiced VAT: (8)=(5)+(6)+(7).

Uses

(9) Total sales for intermediate uses at producers' prices, excluding invoiced VAT.

(10) Sales for final consumption at producers' prices, excluding invoiced VAT.

(11) Sales for gross fixed capital formation at producers' prices, excluding invoiced VAT.

(12) Sales for exports at producers' prices, excluding invoiced VAT.

(13) Total supplies at producers prices, excluding invoiced VAT.

(14) Value of changes in all stocks held by the industry.

(15) Total uses at producers' prices, excluding invoiced VAT: (15)=(13)+(14).

Note: (8)=(15)

CHAPTER VIII: TAXES AND OTHER TRANSFERS*

Introduction

1. A transfer is defined as a unilateral transaction in which one institutional unit pays money, provides a service, or transfers the ownership of a good or a tangible, intangible or financial asset to a second unit without receiving from the second unit any counterpart in exchange in the form of a good, service, tangible, intangible, or financial asset, including money. Transfers may be made in cash or in kind. A transfer of cash, without counterpart, may be recorded directly in the accounts as a single unilateral transaction. A transfer in kind, however, involves two elements. When institutional unit A gives a good or an asset to unit B, or provides free service to B, it is necessary to record in the accounts:

both (i) an imputed cash transfer from A to B equal in value to the good, service or asset provided,

and (ii) the simultaneous purchase of the good, service or asset by B from A, which must be recorded under consumption expenditures, gross fixed capital formation, exports, imports, or the acquisition of an intangible or financial asset by B, depending upon the nature of the good, service or asset transferred.

2. This method of recording transfers in kind is exactly equivalent to that adopted for the recording of employees' remuneration in kind in which an imputed payment of wages and salaries is matched by an imputed purchase of the good or service by the employee.

3. It is necessary to distinguish between current and capital transfers, both in cash and in kind.

Current transfers

4. A cash transfer is described as current when the institutional unit making the transfer treats it as reducing its disposable income in the accounting period in which the transfer takes place and the receiving unit treats the transfer as increasing its disposable income in the current accounting period. A transfer in kind is described as current when it consists of the transfer of a good, or the provision of a service, which is recorded as imputed consumption expenditure by the receiving unit.

Capital transfers

5. A cash transfer is described as capital when the institutional unit making the transfer treats it as a significant reduction in its net worth at the time the transfer takes place and/or the receiving unit treats the transfer as a significant increase in its net worth at the time the transfer takes place. A transfer in kind is described as capital when it consists of the transfer of ownership of a capital good, land or an intangible or financial asset (except money).

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the author.

6. The distinction between current and capital transfers is elaborated further later in this Chapter and Chapter ... .

7. There are two major categories of transfers distinguished in the System, namely taxes and other transfers. These form the subjects of the two main sections of this Chapter.

TAXES

Introduction

8. Taxes are compulsory transfers. They are defined as unrequited, non-repayable payments which institutional units are compelled by law to make to government units. The authority of governments to exact compulsory transfers of this kind from institutional units is one of the distinguishing features of government from an economic point of view.

9. Three main categories of tax payments are distinguished in the System. The first category, called "taxes on production" consists of taxes levied on goods and services at the time they are produced, sold or imported, or possibly on other occasions, together with taxes paid by enterprises which become due as a consequence of their engaging in processes of production. Most of these taxes appear in the production accounts of enterprises in which they are recorded as charges to be paid out of gross value added at market prices. They also appear in the input-output tables of the System. These taxes correspond grosso modo to "indirect taxes" as traditionally understood, although this terminology is no longer used in the System.

10. The second category of taxes called "taxes paid out of income" consists of taxes which are recorded as outlays in the income and outlay accounts of the System. Although these taxes correspond grosso modo to "direct taxes" as traditionally understood, they are more wide ranging than taxes on income and recurrent taxes on wealth.

11. The third group of taxes is called "taxes on capital" and consists of those taxes which are treated in the System as compulsory capital transfers and not as current transfers.

12. Taxes have been defined as compulsory, unrequited, non-repayable payments (in cash or in kind) made by institutional units to governments. They are unrequited when the government provides nothing in return to the individual institutional unit making the payment. Of course, governments use taxes to provide goods or services to other institutional units, either individually or in groups, or to the community as a whole, but a payment of tax is considered unrequited when the individual institutional unit making the payment itself receives nothing specific in return.

13. One of the regulatory functions of governments is not to sanction the ownership or use of certain goods, or the pursuit of certain activities, without granting specific permission by issuing a licence or other certificate for which a fee is demanded. If the issue of such licences involves little or no work on the part of government, the licences being granted automatically on payment of the amounts due, it is likely that they are simply a device to raise another kind of tax, even though the government may provide some kind of certificate, or

authorization, in return. However, if the government uses the issue of licences to exercise some proper regulatory function - for example, checking the competence, or qualifications, of the person concerned, or the efficient and safe functioning of the equipment in question, or carrying out some other form of control which it would otherwise not be obliged to do - the payments should be treated as purchases of services from government rather than payments of taxes. The borderline between taxes and payments of fees for services rendered is not always clear cut in practice, however, and in the case of payments by households certain conventions have been adopted based on a study of country practices in this area, as explained later.

14. The coverage of taxes in the System coincides with that of "tax revenue" as defined in the Manual on Government Finance Statistics, 1986, or GFS, of the International Monetary Fund, except that the System does not include Social Security Contributions under the heading of taxes. Chapter IV of the GFS contains a detailed listing and classification of taxes by type which is also reprinted as Annex IV in the Handbook of National Accounting on Public Sector Accounts (United Nations, 1988).

15. The categories of taxes distinguished in the System should not be interpreted as an alternative classification of taxes to that given in the GFS. As a classification of taxes by type of tax, that given in GFS is adequate for the needs of the SNA and it is referred to in some detail below. The categories of tax distinguished in the System depend on the interaction of three factors of which type of tax is only one, namely:

(1) The type of tax, as specified in the GFS classification;

(2) The type of institutional unit paying the tax;

(3) The circumstances in which the tax is paid.

16. Thus, payments of exactly the same tax (for example VAT or an excise duty) may be recorded under "taxes on imports" or under "taxes on domestic products" depending upon the occasion or circumstances in which it is paid. Similarly, payments of exactly the same tax may be recorded under "taxes on production" or under "taxes paid out of income" depending upon whether the tax is paid by an enterprise or by a household. For this reason, the great majority of types of tax distinguished in the GFS classification appear in two quite different SNA categories. Thus, it is not possible to arrive at the categories of tax payments in the SNA by rearranging a classification of taxes by type, such as that in the GFS, however detailed the classification may be. However, in order to make use of the detailed classification of taxes given in the GFS each category of tax payment listed below contains a cross-reference to the corresponding type of tax, or taxes, as described in more detail in GFS. When the SNA category covers only some of the payments of a tax of a given type, an asterisk is attached to GFS code number.

17. Because payments of a single type of tax may appear under "taxes on production" or under "taxes paid out of income", it is not possible to make the traditional distinction between "indirect" and "direct" taxes simply on the basis of type of tax. It follows that the various types of tax, such as those given in the GFS classification, cannot be divided into two mutually exclusive groups corresponding to indirect and direct taxes. However, the idea that taxes can be divided into two groups on the basis of whether or not they can be "passed on" to

other institutional units in the form of higher prices is somewhat outmoded and the distinction is no longer used in modern texts on public finance and taxation theory. It is extremely difficult to determine the effective, or real, incidence of different kinds of taxes in practice, and it is not appropriate for the System to use terminology which appears to lend support to a naive theory of tax incidence which is no longer generally accepted. For this reason, the terms "direct" and "indirect" taxes are no longer used in the System, a more descriptive, although less elegant, terminology being used in its place.

18. One important difference between the SNA and the GFS is that the SNA records taxes when they are due for payment, whereas the GFS records taxes when they are actually paid. It is necessary to record taxes on an accruals basis in the SNA in order to be consistent with the way in which transactions are recorded throughout the System as a whole. Finally, it should be noted that both Systems include in the value of taxes interest which may be charged on the late payment of taxes and any fines or other penalties which may be imposed for the attempted evasion of taxes or to cover the costs of collecting overdue taxes. Conversely, taxes are reduced by the amount of any refunds resulting from the overpayment of taxes, or general rebates made by government decision.

19. In the System, subsidies are defined in such a way that they are equivalent to negative taxes on products, or negative taxes on production. However, it is preferable to treat subsidies separately from the corresponding taxes, and they are so treated below.

TAXES ON PRODUCTION

20. Taxes on products and other taxes on production consist of taxes paid on products at the time they are produced, used, sold or imported and other taxes paid by enterprises which become due as a result of engaging in processes of production. They are taxes which are actually paid by enterprises to government and which enterprises treat as charges against their receipts from sales. The taxes are usually deductible in business accounts when calculating profits, including profits as assessed for purposes of corporate income taxes or other taxes on profits.

1. Taxes on products

21. A tax on a product is a tax which is paid per unit of a product - that is a good or service which has been produced as an output of a resident or non-resident enterprise. The tax may be a specified amount of money per unit of quantity of a good or service (the quantity units being measured either in terms of discrete units or continuous physical variables such as volume, weight, strength, etc.) or it may be calculated ad valorem as a specified percentage of the price of a unit of the good or service. A tax on a product usually becomes due when it is produced, sold or imported, but it may also become due in other circumstances such as when a good is exported, leased, transferred, delivered, or used for own consumption or own capital formation. Enterprises may itemize the amount of a tax on a product separately from the producer's price on the invoice or bill which they charge their customers, but such taxes are nevertheless collected and paid by enterprises. Taxes on products are divided into two main groups, namely taxes on domestic products and taxes on imports.

1.1 Taxes on domestic products

22. Taxes on domestic products consist of all taxes on goods and services produced as the outputs of resident enterprises which become due for payment as a result of the production, sale, export, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation. It may not be possible to give an exhaustive list of such taxes, but they include the following commonly occurring taxes.

(a) General sales, turnover or value-added taxes: these include manufacturers', wholesale and retail sales taxes, purchase taxes, turnover taxes, value-added taxes and so on (G.F.S.: item 5.1*).

When a value-added tax is levied it is necessary to record the amounts paid in VAT separately from other taxes on products.

It should be noted that general sales taxes, and in particular VAT, are also usually due for payment on imported goods when they enter the economy territory.

(b) Excise duties: these consist of taxes levied on specific kinds of goods, typically alcoholic beverages, tobacco and fuels (G.F.S.: item 5.2*). Excise duties are also payable on imports.

(c) Taxes on specific services: these include taxes on transportation, communications, insurance, advertising, hotels or lodging, restaurants, entertainments, gambling and lotteries, sporting events, and so on (G.F.S.: item 5.4*). Some of these taxes may be levied on imports of services.

(d) Export duties: general or specific taxes or duties on exports (G.F.S.: item 6.2).

(e) Profits of fiscal monopolies: these consist of the profits of fiscal monopolies which are transferred to government. Fiscal monopolies are public corporations, or public quasi-corporations, which have been granted a legal monopoly over the production or distribution of a particular kind of good or service in order to raise revenue and not in order to further the interests of public economic or social policy. Such monopolies are typically engaged in the production of goods or services which tend to be heavily taxed in other countries: for example, alcoholic beverages, tobacco, matches, petroleum products, salt, playing cards and so on. The exercise of monopoly powers is simply an alternative way for the government to raise revenue instead of the more overt procedure of taxing the private production of such products. In such cases, it is proposed that the sales prices of the monopolies should be deemed to include imputed taxes on the proucts sold. While in principle only the excess of the monopoly profits over some notional "normal" profits should be treated as taxes, it is difficult to estimate this amount, and it is therefore proposed that, in practice, the imputed value of the taxes should be taken as equal to the amount of the profits actually transferred from fiscal monopolies to government (G.F.S.: item 5.3).

When a public enterprise is granted monopoly powers as a matter of deliberate economic or social policy because of the special nature of the good or service or the technology of production - for example, public utilities, post offices and telecommunications, railways, and so on - it should not be treated as a fiscal monopoly. As a general rule, fiscal monopolies tend to be confined to the production of consumer goods or fuels.

As the profits of a fiscal monopoly are calculated for the enterprise as a whole, it is not possible to estimate the average amount of the imputed tax per unit of good or service sold when the enterprise has more than one good or service as output without introducing an assumption about the rates of the tax on the different products. Unless there is good reason otherwise, it is best to assume that the same ad valorem rate of tax is applied to all products, this rate being given by the ratio of the total value of the imputed taxes to the value of total sales. It is necessary to know this rate in order to be able to calculate the basic prices of the products concerned.

(f) Profits of export monopolies: these consist of the profits of export marketing boards, or other public enterprises exercising a monopoly over the exports of some good or service, which are transferred to government. The justification for treating these profits as imputed taxes on products is essentially the same as that given above for fiscal monopolies (G.F.S.: item 6.3*).

1.2 Taxes on imports

23. Taxes on imports consists of all taxes on goods and services produced by non-resident enterprises which become due for payment when those goods cross the frontiers of the economic territory or when those sevices are delivered to resident institutional units. Taxes on imports include the following commonly occurring taxes:

(a) Import duties: these consist of duties, or other import charges, which are automatically levied on all goods of a particular type, produced by non-resident enterprises when they enter the economic territory. The duties are specified under customs tariff schedules and they may be intended either primarily as a means of raising revenue or primarily as a means of discouraging imports in order to protect resident goods producers (G.F.S.: item 6.1).

(b) General sales taxes, turnover or valued added taxes: these are the same taxes as those levied on goods and services produced by resident enterprises. They become due for payment, in addition to import duties, when the goods enter the economic territory or the services are delivered to residents (G.F.S.: item 5.1*). When a system of VAT is in operation, the VAT paid on imports of goods and services should be recorded, and shown, separately.

(c) Excise duties: these are the same excise duties as those levied on goods produced by resident enterprises. They become due for payment in addition to import duties when the goods enter the economic territory. (G.F.S.: item 5.2*)

(d) Taxes on specific services: these are the same taxes as those levied on services produced by resident enterprises. They become due for payment when non-resident enterprises provide services to resident units within the economic territory. (G.F.S.: 5.4*)

(e) Profits of import monopolies: these consist of the profits of import marketing boards, or other public enterprises exercising a monopoly over the importation of some goods or services, which are transferred to governments. The justification for treating these profits as imputed taxes is the same as that given above for fiscal monopolies and export monopolies (G.F.S.: item 6.3*).

Exclusions from taxes on imports

24. Goods which have been imported and on which all the required taxes on imports have been fully paid may become subject to a further tax, or taxes, before they are finally used. For example, excise duties or sales taxes may become due on goods as they pass through the chain of wholesale or retail distribution, such taxes being levied on all goods at the same point, whether those goods have been produced by resident enterprises or imported. Taxes which may be levied in this way on goods which have been previously imported and on which all taxes on imports, as defined above, have already been paid, are treated as taxes on domestic products and grouped under heading 1.1 above. Thus, once imported goods have been admitted into free circulation within the economic territory, any further taxes which may become due on them are not to be included in taxes on imports.

2. Other taxes on production

25. These consist of all taxes except taxes on products which enterprises are required to pay as a consequence of engaging in production. Such taxes may become due on certain primary factors of production employed in the production process or on certain activities or transactions as such. Taxes on production do not, however, include taxes on the profits or surplus earned from production or other income received by an enterprise. Taxes on production include the following commonly occurring taxes:

(a) Taxes on payroll and work-force: these consist of taxes paid by enterprises which are levied either as a proportion of the wages and salaries paid in cash or as a fixed amount per person employed. They do not include compulsory social security contributions paid by employers or any taxes paid by the employees themselves out of their wages or salaries (G.F.S.: item 3*).

(b) Recurrent taxes on land, building or other structures: these consist of taxes levied regularly, usually each year, in respect of the use or ownership of land, buildings or other structures, utilized by enterprises in production, whether the enterprises own or rent such assets (G.F.S.: item 4.1*).

(c) Business and professional licences: these consist of taxes paid by enterprises, whether corporate or unincorporated, in order to obtain a licence to carry on a particular kind of business or profession. However, if the government carried out checks on the suitability, or safety of the business premises, on the reliability, or safety, of the equipment employed, on the professional competence of the staff employed, or on the quality or standard of goods or services produced, as a condition for granting such a licence, the payments cannot be treated as unrequited and they should be treated as payments for services rendered, unless the amounts charged for the licences are out of all proportion to the costs of the checks carried out by governments (G.F.S.: item 5.5.1).

(d) Taxes on the use of goods or other activities: these include taxes levied periodically on the use of vehicles, ships, aircraft or other machinery or equipment used by enterprises for purposes of production, whether such equipment is owned or rented. Such taxes are often described as licences, and are usually fixed amounts which do not depend on the actual rate of usage. (G.F.S.: items 5.5.2* and 5.5.3*)

(e) Taxes on financial and capital transactions: these consist of taxes levied on the purchase or sale by enterprises of financial and non-financial assets, as distinct from goods and services. They are taxes levied on changes in the ownership of property of assets, except those consisting of capital transfers (mainly inheritances and gifts). (G.F.S.: item 4.4*)

(f) Stamp taxes: these consist of stamp taxes which do not fall on particular classes of transactions already identified: for example, stamps on legal documents or cheque. However, stamp taxes on the sale of specific products, such as alcoholic beverages or tobacco, are treated as taxes on products. (G.F.S.: item 7.2*)

(g) Taxes on pollution: these consist of taxes levied on the omission or discharge into the environment of noxious gases, liquids or other harmful substances. They do not, of course, include payments made for the collection and disposal of waste or noxious substances by public authorities which are treated as purchases of intermediate services by enterprises (G.F.S.: item 7.3*).

(h) Taxes on international transactions: these consist of taxes levied on the sale or purchase of foreign exchange, or both, and taxes on travel abroad, foreign remittances or similar transactions with non-residents (G.F.S.: items 6.5 and 6.6*).

SUBSIDIES

26. Subsidies are essentially negative taxes on products or negative taxes on production. They are unrequited, non-repayable payments which government units make to enterprises on the basis of the levels of their production activities or the quantities or values of the goods on services which they produce, sell or import. Subsidies are thus current transfers which are directed towards producers and are designed to influence the levels of production of resident enterprises, the prices at which their outputs are sold and the remuneration of the factors of production employed therein.

27. In the System, subsidies are confined to current transfers which are geared to the production or importation of goods or services. Thus, it is not possible in the System to grant subsidies for the purpose of consumption, so that current transfers which governments make directly to households as consumers are treated as social benefits, social assistance grants or other transfers. Subsidies also do not cover grants which governments may make to enterprises, in order to finance their capital formation, or compensate them for damage to their capital assets, such grants being treated as capital transfers.

1. Subsidies on products

28. A subsidy on a product is a subsidy which is paid per unit of a product: that is, a good or service produced as an output of a resident or non-resident enterprise. The subsidy may be a specified amount of money per unit of quantity of a good or service, or it may be calculated *ad valorem* as a specified percentage of the price of a unit of the good or service. In addition, a subsidy may be calculated as the difference between a specified target price and the producer's price actually received by a producer. A subsidy on a product usually becomes due when the good or service is produced, sold or imported, but it may also become due

in other circumstances such as when a good is transferred, leased, delivered or used for own consumption or own capital formation.

1.1 Subsidies on domestic products

29. Subsidies on domestic products consist of all subsidies on goods or services produced as the outputs of resident enterprises and which become due for payment as as a result of the production, sale, export, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation. There are not so many different types of subsidy as there are taxes on products but it is nevertheless necessary to distinguish several different types of subsidy on domestic products as follows:

(a) Subsidies on products used domestically: these consist of subsidies paid directly to private resident enterprises in respect of their outputs which are used or consumed within the economic territory.

(b) Subsidies on exports: these consist of subsidies paid directly to private resident producers as a consequence of their sales to non-residents as exports.

(c) Losses of government trading organizations: these consist of the losses incurred by government trading organizations whose function is to buy and sell the products of resident enterprises. When such organizations incur losses as a matter of deliberate government economic or social policy by selling at lower prices than those at which they purchased the goods, the difference between the purchase and the selling prices should be treated as an imputed subsidy. Entries to the stocks of goods held by such organizations are valued at the purchasers' prices paid by the trading organizations and the subsidies recorded at the time the goods are sold.

(d) Subsidies to public corporate and quasi-corporate enterprises: these consist of regular transfers paid to public corporate and quasi-corporate enterprises which are intended to compensate for persistent losses - i.e. negative net operating surpluses - which they incur on their productive activities as a result of charging prices which are lower than their average costs of production as a matter of deliberate government economic and social policy. In order to calculate the basic prices of the outputs of such enterprises, it will usually be necessary to assume a uniform *ad valorem* implicit rate of subsidy on those outputs determined by the size of the subsidy as a percentage of the value of sales plus subsidy.

1.2 Subsidies on imports

30. Subsidies on imports consist of all subsidies on goods and services produced by non-resident enterprises which become due for payment when those goods cross the frontiers of the economic territory or when those services are delivered to resident institutional units.

31. As in the case of taxes on products, it should be noted that subsidies on imported goods do not include any subsidies that may be paid on such goods after they have crossed the customs frontier and entered into free circulation within the economic territory of the country.

2. Subsidies on production

32. These consist of all subsidies except subsidies on products which private resident enterprises may receive as a consequence of engaging in production. Such subsidies may become due for payment in the following kinds of circumstances.

(a) Subsidies on payroll or work-force: these consist of subsidies paid to enterprises which are based on the total wages or salaries paid, or total work force, or on the employment of particular types of persons such as physically handicapped persons or persons who have been unemployed for long periods. The subsidies may also be intended to cover some or all of the costs of training schemes which are organized or financed by enterprises.

(b) Subsidies on the use of inputs: these consist of subsidies paid in order to encourage the use of particular kinds of inputs into the production process.

(c) Subsidies to reduce pollution: these consist of subsidies intended to cover some or all of the costs of additional processing which is undertaken to reduce or eliminate the discharge of pollutants into the environment.

NET TAXES ON PRODUCTION

33. Taxes and subsidies have been defined and described in the preceding sections for each of the following types of payments:

1. Taxes or subsidies on products, of which:
   1.1 Taxes or subsidies on domestic products.
   1.2 Taxes or subsidies on imports.
2. Taxes or subsidies on production.

34. The net taxes for each of these categories are defined as taxes minus subsidies and the term "net taxes" is to be understood in this sense wherever it is used in this Manual.

TAXES PAID OUT OF INCOME

35. Taxes paid out of income consists of all taxes paid by institutional units except (i) taxes on production and (ii) non-recurrent taxes on capital or wealth. Such taxes are deemed to be paid out of the income of institutional units and to be perceived by the latter as reducing the amount of their income which can be used for other purposes or retained as saving. Four broad categories of taxes paid out of income may be distinguished:

1. Taxes on income and profits.
2. Taxes on capital gains.
3. Recurrent taxes on property or net worth.
4. Other taxes paid out of income.

36. The types of taxes included under each of these three headings are described below.

1. Taxes on income and profits: these consist of taxes levied on the actual or presumed net income of individuals, households or non-profit institutions, or on the profits of corporate enterprises. They include taxes on holdings of property, land or real estate when these holdings are used as a basis for assessing the income which is presumed to be received from those holdings. They include the following commonly occurring types of taxes.

(a) Taxes on individual or household income: these consist of personal income taxes, including those deducted by employers (pay-as-you-earn, PAYE, taxes) and surtaxes. Such taxes are usually levied on the total declared or presumed income from all sources of the person concerned: compensation of employees, property income, pensions, etc. - after deducting certain agreed allowances. Taxes on the income of owners of unincorporated enterprises are included here (G.F.S.: item 1.1*).

(b) Taxes on the income of corporations: these consist of corporate income taxes, corporate profits taxes, corporate surtaxes, and so on. Such taxes are usually assessed on the total incomes of corporations from all sources and not simply profits generated by production (G.F.S.: item 1.2*).

2. Taxes on capital gains

37. These consist of taxes on the capital gains of individual persons or corporations which become due for payment during the current accounting period, irrespective of the period over which the gains accrue. They are usually levied on nominal, rather than real, capital gains and on realized, rather than unrealized, capital gains. (G.F.S.: items 1.1* and 1.2*)

3. Recurrent taxes on property or net worth

38. These are taxes which are levied repeatedly - i.e. year after year - on the holdings of individual assets or property or on the net worth of institutional units, excluding holdings of land, buildings, structures or other tangible assets which are used by enterprises for purposes of production and which are treated as taxes on production.

(a) Recurrent taxes on the property or net worth of households: these consist of taxes which are repeatedly levied on the value of the property, assets or net worth possessed by individuals and households and which may be levied in addition to taxes on income, including taxes on the actual or presumed income from property or wealth. They exclude taxes on the assets of unincorporated enterprises which are used in the production process which are treated as taxes on production. (G.F.S.: items 4.1* and 4.2.1)

(b) Recurrent taxes on the property or net worth of corporations: these consist of taxes which are levied repeatedly on the property or net worth of corporations, excluding taxes on assets used in the production process which are treated as taxes on production. (G.F.S.: items 4.1* and 4.2.2)

4. Other taxes paid out of income: These consist of a group of miscellaneous taxes which are quite different from each other but which are grouped together in order to reduce the number of tax categories.

(a) Poll taxes: these are taxes which are levied as specified amounts of money per person, or per household, independently of actual or presumed income. The amounts levied may vary, however, according to the circumstances of the person or household. (G.F.S.: item 7.1)

(b) Expenditure taxes: these are taxes which are assessed on the total expenditures of persons or households over a given period. They are paid by households and should be clearly distinguished from sales taxes paid by enterprises. Expenditure taxes are alternatives to income taxes and have been strongly advocated by some economists. Expenditure taxes may be levied at progressively higher rates in the same way as personal income taxes, depending upon the total level of expenditure. They are relatively uncommon, in practice. (G.F.S.: item 7.3)

(c) Taxes on winnings from lottery or gambling: these are taxes levied on the amounts received by winners as distinct from taxes on the turnover of enterprises which organize gambling or lotteries which are treated as taxes on the products of those enterprises.

(d) Payments by households to obtain certain licences: payments by persons or households for licences to own or use private motor vehicles, and for licences to hunt, shoot or fish are, by convention, treated as taxes. Payments for all other kinds of licences (e.g. driving licences, television or radio licences, firearm licences, etc.) or fees to government (e.g. payments for passports, airport fees, court fees, etc.) are, by convention, treated as payments by households for services rendered by governments. The distinction between taxes and payments for services is inevitably somewhat arbitrary and it has been impossible to reach a consensus on the most appropriate boundary between the two, despite many years of debate on the subject. The amounts involved are rather trivial, however, and the convention adopted in the System is based on the practice actually followed in the majority of countries in their own accounts. (G.F.S.: items 5.5.2* and 5.5.3*)

(e) Taxes on financial and capital transactions: these consist of taxes levied on the purchase or sale by households of financial and non-financial assets: they exclude taxes on capital transfers, such as inheritance taxes or taxes on gifts, which are treated in the System as taxes on capital (see below).

(f) Stamp taxes: these consist of stamp taxes, excluding those on goods and services, paid by households: e.g. stamps on wills or other legal documents or cheque. (G.F.S.: item 7.2)

(g) Taxes on international transactions: these consist of taxes levied on the purchase or sale of foreign exchange by households and taxes on travel abroad, foreign remittances, foreign investments, etc. (G.F.S.: items 6.5 and 6.6)

TAXES ON CAPITAL

39. Taxes on capital may be defined as taxes which are levied at irregular and very infrequent intervals on the value of the property, assets or net worth held by

institutional units including taxes on property or assets received by institutional units as a consequence of capital transfers.

1. Capital levies: these consist of taxes on the value of the property, assets or net worth held by institutional units which are levied at irregular, and very infrequent, intervals of time and which are therefore treated as exceptional both by the units concerned and by the government. Such levies are not expected to be repeated, at least within the foreseeable future, by the units concerned. They may be levied on households, or enterprises, or both. They include betterment levies: that is, taxes on the increase in the value of land due to permission being given by local authorities to develop the land for commercial or residential purposes (GFS.: item 4.5).

2. Taxes on capital transfers: these consist of taxes on unrequited transfers of capital between institutional units. They do not include taxes levied on sales of property or other assets which are treated as taxes paid out of income. They consist mainly of inheritance taxes and gift taxes, including gifts inter vivos i.e. gifts between members of the same family made to avoid inheritance taxes.

OTHER CURRENT TRANSFERS

Introduction

40. In addition to current taxes, there are various kinds of current transfers, in cash or in kind, which are made between institutional units. As already stated, a transfer is unilateral transaction in which one institutional unit pays money, provides a service, or transfers ownership of a good or a tangible, intangible or financial asset to another unit without receiving any counterpart in exchange in the form of good, service or asset, including money.

41. Payments of social security contributions, and net accident insurance premiums, are treated in the System as transfers, or unrequited payments, for much the same reasons that taxes are treated as transfers, namely that there is no observable counterpart received by the individual institutional unit making the payment, even though benefits or claims are paid to other units and accrue collectively to the community as a whole. The individual unit paying a Social Security contribution, or accident insurance premium, may be entitled to certain benefits in the future should certain events occur, but these benefits are only contingent. Entitlement to such benefits cannot be equated with the acquisition of a financial asset by the individual, and such entitlement do not figure in balance sheets. The payments of compulsory Social Security contributions are therefore similar to taxes in so far as they are both compulsory unrequited payments, although they serve rather different purposes.

42. There are, of course, many other forms of transfers besides taxes, Social Security contributions, and net accident insurance premiums and they are described in the remaining sections of the Chapter.

SOCIAL CONTRIBUTIONS AND BENEFITS

43. Social contributions and social benefits consist of current transfers between institutional units which are made with the intention of providing for, or maintaining, the welfare of individual persons or households either in the current or future periods. The payment of social contributions entitles the payer, or his family or dependents, to certain benefits should certain events occur in the current or future periods. The circumstances which may give rise to the payment of benefits include the following.

(1) an individual requires medical treatment, personal care or attention, temporarily or permanently, as a result of sickness, maternity, chronic ill-health or other physical or mental condition, or personal injury caused by an accident at work or elsewhere, war, natural disaster, or other events;

(2) an individual is unable to work for a period of time as result of sickness, ill-health, accident, maternity, industrial stoppage, or other reason or loses his or her job as a result of being made redundant or for some other reason;

(3) an individual stops work permanently, either voluntarily or compulsorily, as a result of reaching a certain age, or becomes entitled to a pension at a certain age whether stopping work or not at that point;

(4) the dependants of an individual become entitled to the receipt of benefits in the event of the individual's death or incapacity;

(5) the individual has to support children or other persons who are unable to support themselves because of their age or their physical or mental condition.

44. The above list is intended to indicate the kind of circumstances which may give rise to the payment of social benefits. In practice, the range of benefits provided will depend on the coverage or scope of the particular scheme under which the payments of contributions and benefits are organized. Such a scheme may be organized privately or by the government, and the range of benefits provided may vary considerably from scheme to scheme, possibly including certain other kinds of benefits not listed above.

Social Security contributions

45. Social Security contributions consist of current transfers paid in cash to secure the entitlement of certain individuals to the receipt of social benefits under a Social Security Scheme organized by government. Social Security Schemes are schemes imposed, controlled or financed by government units for the purpose of providing social benefits to members of the community as a whole, or of particular sections of the community. The Social Security Funds which are established for this purpose are organized and managed separately from other government funds. The receipts of Social Security Funds consist mainly of contributions paid by individuals and by employers, but they may also include transfers from other government funds. The payment of Social Security contributions by, or on behalf of, certain specified individuals, such as employees, may be compulsory by law, but some individuals who are not obliged to do so may also pay voluntarily in order to qualify for the receipt of Social Security benefits. The benefits paid to individuals, or households, are not necessarily determined by the amounts they have previously paid in contributions, while the levels of the benefits paid out to the

community as a whole may be varied in accordance with the requirements of the government's overall economic policy.

46. Three kinds of Social Security contributions may be distinguished:

(1) Employees' contributions: these are current transfers paid to Social Security schemes by individual employees. They are usually compulsory and may be fixed amounts or vary with the level of compensation of employees paid. They are usually deducted from wages and salaries by the employer and paid directly to the Social Security Scheme by the employer.

(2) Employers' contributions: these are current transfers paid to Social Security Schemes by employers on behalf of their employees: they are also usually compulsory. The employers' contribution is treated as part of the compensation of employees: that is, an amount of money equal to the value of the employer's contribution is deemed to be paid by the employer to the employee as a form of remuneration, the employee then being deemed to transfer the amount to the Social Security Scheme. In practice, the employer pays the contribution directly to the Social Security Scheme.

(3) Contributions by persons not in paid employment: these are current transfers to Social Security Schemes paid by persons who are not in paid employment, including self-employed or retired persons. Such contributions may be optional.

Imputed social contributions by employers

47. Some employers provide social benefits in the event of sickness, accident, redundancy, retirement, etc. by making payments, or providing goods or services, to their employees, ex-employees or their dependents directly out of their own funds or reserves without establishing any separate autonomous fund for the purpose or involving any third party such as an insurance enterprise. Their current employees stand to benefit from these entitlements in much the same way as they would if their employer had made provision for them differently by actually establishing a separate fund or paying contributions to an insurance enterprise. The System therefore requires contributions to be imputed in respect of the benefits to which they are de facto entitled in order to reflect the underlying economic reality of the situation.

48. The employer is therefore treated as if he had created a separate fund out of which the payments of social benefits to his employees are made. Two imputations are therefore required:

(a) The employer is deemed to pay a certain amount to the employee as a supplement to the actual wages or salaries paid in cash or kind to cover the employee's contribution to the hypothetical fund;

(b) The employee is then deemed to pay the same amount back again to the hypothetical fund as a current transfer.

49. Thus, the first imputation (a) is a form of remuneration which is deemed to be paid by the employer to the employee and only the second imputation (b) is treated as constituting a current transfer. As the employee has no kind of ownership rights or control over the hypothetical fund which is deemed to be administered by

the employer, it is not appropriate to treat the contribution in the same way as the payment of a premium to an insurance enterprise or contribution to an autonomous pension fund. The imputed contribution is therefore treated as a current transfer in the same way as the payment of a contribution to a Social Security Scheme.

50. The provision of unfounded social benefits is often undertaken by very large employers, including government units. When the government is the employer it is important to distinguish the provision of unfunded social benefits and the corresponding imputed contributions from the operation of general Social Security Schemes which apply to the community as a whole, or large sections of the community, and are not confined to the employees of government.

Social Security benefits

51. Social Security benefits consist of social benefits paid to individual households out of Social Security Funds to which the households are entitled as a result of the participation of a member of the household in the Social Security Scheme by paying Social Security contributions in the current or previous periods of time. Social Security benefits may be paid in cash or in kind:

(1) cash benefits consist of current transfers paid out of Social Security Funds to individual households in the form of allowances or pensions which may be paid regularly over the period during which the circumstances giving rise to the claim apply, or they may take the form of single payments related to specific events;

(2) benefits in kind consist of the provision of goods or services to individual households either free or at greatly reduced prices, which are paid for out of Social Security Funds. The benefits may consist of items such as medical treatments or other forms of personal care or attention, medicines, appliances, spectacles, transportation, etc. If they are provided at reduced prices, only the difference between the price paid and the current basic price of the same good or service constitutes a benefit in kind. Current transfers consisting of benefits in kind may be subdivided into two categories:

(a) goods or services provided directly to individual households without any payment by the latter, or the payment of a purely nominal amount;

(b) goods or services which are actually paid for by households, the amounts of such expenditures being reimbursed in whole, or in part, out of Social Security Funds. Such expenditures are treated as being incurred by Social Security Funds as they ultimately bear the cost. The values of the benefits in kind in these cases are measured by the amounts which individual households receive in reimbursements.

52. It should be noted that the amounts spent by Social Security Schemes in benefits in kind are expenditures incurred by Social Security and are not recorded as part of household consumption expenditures.

Unfunded social benefits provided to employees

53. These consist of the social benefits which some employers pay out of their own funds to their employees, ex-employees or their dependants in event of sickness, accident, maternity, redundancy, retirement, etc., without establishing any

separate, autonomous fund for the purpose or involving a third party such as an insurance corporation. These benefits are treated as current transfers and may take the form of family allowances, pensions, compensation payments for redundancy, lump sum gratuities on retirement, etc. While such benefits are mostly paid in cash, some may consist of transfers in kind. For example, some employers may maintain their own clinics, convalescent, or retirement homes for the treatment or care of their employees, ex-employees or their dependants. Such benefits in kind may be distinguished from remuneration in kind because the entitlement to social benefit arises only when certain specified events - sickness accident, redundancy, retirement, etc. - occur and the benefits do not form part of the employees' regular remuneration. For example, the provision of regular medical examinations by employers counts as remuneration in kind because these examinations take place at stated intervals and are not contingent upon some other event occurring. The payment of children's or family, allowances is treated as a social benefit, whereas the payment of educational allowances is treated as a component of wages and salaries. The distinction between children's and educational allowances is evidently a fine one, but payments intended to cover the cost of educational expenses are not treated as social benefits in general in the System. It should be noted, however, that the payment of children's or educational allowances by employers will be included in compensation of employees whichever way they are treated. If such an allowance is not treated as a social benefit it must be included directly as a component of wages or salaries; if it is treated as a social benefit, the imputed contribution in respect of such a benefit is included in the unfunded social contributions paid by employers. In the case of a children's allowance, the imputed contribution can be taken to be equal in value to the benefit paid.

Social assistance grants

54. Social assistance grants consist of all current transfers, in cash or in kind, made to households by govenrment units or non-profit institutions except for:

(a) social benefits: that is, current transfers financed out of Social Security Funds or unfunded social benefits paid by employers to their present or previous employees or dependants;

(b) transfers in kind of goods or individualized services produced as the outputs of non-market producers owned by government units or non-profit institutions.

55. Social assistance grants are current transfers made with the general intention of preventing, or alleviating, hardship for households with limited resources or who have suffered as a result of war, or other forms of violence or destruction including that caused by national disasters such as floods, earthquakes or droughts.

56. Social assistance grants may be made in cash or in kind. Cash transfers may take the form of lump sum payments or regular allowances or pensions which are similar to those paid by Social Security Schemes. Such allowances may be paid for various reasons, for example:

(a) the individual or household may not be eligible for the corresponding kind of Social Security benefit;

(b) the household's resources may be so low that it qualifies for a social assistance grant as a supplement to Social Security benefits;

(c) there may be no Social Security Scheme in operation, or a scheme with only very limited coverage;

(d) the reason for which the allowance or pension is paid is some eventuality which is not covered by Social Security, e.g. the payment of education allowances, scholarships, or war pensions.

57. Social assistance grants in kind generally fall into one of two major categories:

(a) goods and services provided to relieve the victims of wars or major disasters; for example, food, clothing, blankets, medicines, etc.

(b) goods or services such as medicines, medical treatments, educational services, transportation services, etc. which are purchased by government units or non-profit institutions from market producers and provided free to households. The free distribution may be arranged in two ways:

(1) the market producers may provide the goods and services free, or at reduced prices to households and then charge the government units, or non-profit institution, the full market prices for those goods and services, less any amounts paid by the households;

(2) the households may pay the full market price to the producers and then claim reimbursement, in whole or in part, from government units or non-profit institutions: the amounts reimbursed measure the value of the goods and services provided in kind.

Transfers of non-market goods or individual services

58. Goods and individual services provided free, or at prices below their costs of production, by non-market producers to individual households constitute current transfers in kind. These consist mostly, or sometimes entirely, of services supplied to individual households such as health or education services. The distinction between these individual services and collective services provided by government units, or non-profit institutions, to the community as a whole, or particular sections of the community, is explained in Chapter ... .

59. The value of these transfers in kind is equal to their costs of production less any amounts paid by the households themselves when nominal prices are charged for the goods or services. As the costs of non-market goods or services are incurred by the government units or non-profit institutions which own the non-market producers, the expenditures on these goods and services are attributed to the government units or non-profit institutions which provide them and are not recorded under household consumption expenditures.

OTHER FORMS OF TRANSFER

Net accident insurance premiums

60. The payment of an accident insurance premium consists of two distinct elements which are treated quite differently in the System.

61. The first component consists of a payment to the insurance enterprise for the service it provides in arranging the insurance. The payment of this service charge is included in intermediate or final consumption, depending upon what the item insured is used for. The way in which insurance service charges are to be measured has been explained in Chapter ... above.

62. The second component is equal to the actual or gross premium paid less the service charge. It is described as the net premium and is treated in the System as a current transfer. The net premium is the amount paid for accident insurance as such. It is intended to provide financial protection or cover against various risks such as the occurrence of damage to goods or property or injury to persons as a result of accidents of all kinds - collisions of vehicles, crashes, sinking, fire, flood, theft, violence, etc. - or losses of income resulting from sickness, accidents, unemployment, etc. In contrast to life or endowment insurance, payments of net accident insurance premiums do not lead to the acquisition of assets on the part of policy holders and are therefore treated as current transfers.

63. Net accident insurance premiums include the premiums in respect of health insurance or other forms of accident insurance which employers pay on behalf of their employees. These are one of the components of the current social contributions paid by employers which are included in compensation of employees, the remaining components consisting of life insurance and pension contributions (which are not transfers, however). The employer is deemed to pay the amount of any health or other accident insurance premiums to the employee who is then deemed to pay the premiums to the insurance enterprise.

64. The gross insurance premiums which are to be used for the calculation of the net premiums are those parts of the gross premiums paid in the current period, or previous periods, which cover risks outstanding in the current period. These are described as the gross premiums earned in the current period: they should be distinguished from the gross premiums which become due for payment during the current period, which in practice usually relate to risks in future periods as well as the current period.

Accident insurance claims

65. Accident insurance claims are treated in the System as current transfers paid out of the insurance technical reserves held by insurance enterprises. They are the amounts paid out of insurance reserves in settlement of the claims which become due for payment during the current accounting period. Claims are considered to become due at the moment when the accident or other eventuality occurs which gives rise to a valid claim which is accepted by the insurance enterprise.

66. The settlement of an accident insurance claim involves a cash transfer to the claimant, who is not necessarily the policy holder. Such payments are always treated as current transfers, even when large sums may be involved as a result of the accidental destruction of a large capital good or as a result of very serious personal injury to an individual. The amounts received by claimants are usually not committed for any particular purpose and it is quite common for goods or assets which have been damaged or destroyed not to be repaired or replaced.

67. Some claims arise because of damages or injuries which the holders of insurance contracts cause to the property as persons of third parties: for example, the damages or injuries which insured drivers of vehicles may cause to

other vehicles or persons. In these cases, valid claims are recorded as being paid directly by the insurance enterprise to the injured parties and not as being paid indirectly via the policy holder.

The settlement of uninsured claims for damages

68. The payments of claims for damages which are not insured under a contract of insurance are also treated as current transfers between institutional units. Such payments may be required as a result of litigation or may be agreed out of court. They are treated as being due for payment when the damage which gives rise to the settlement takes place. The payments may be recorded under "miscellaneous transfers" paid or received.

Fines and penalties

69. Fines and penalties imposed on institutional units by courts of law or quasi-judicial bodies are treated as compulsory transfers. However, fines or other penalties imposed by tax authorities for the evasion or late payment of taxes are grouped with the corresponding taxes and are not included under this heading.

70. Payments of fees to obtain licences are also not included under this heading as such payments are treated either as taxes or purchases of services, as explained in the section on taxes.

Current transfers within general government

71. These consist of current transfers, in cash or in kind between different government units or different subsectors of general government. They include current transfers between different levels of government, which frequently occur between central and state or local government units, and between government units and Social Security Schemes. They do not include transfers of capital goods, or of funds which are committed to finance gross fixed capital formation, such transfers being treated as capital transfers.

72. One government unit may act as an agent on behalf of a second government unit by, for example, collecting taxes which are due to the second unit at the same time as it collects its own taxes. Taxes collected on behalf of the second unit in this way are to be recorded as accruing directly to the second unit and are not to be treated as a current transfer from the first to the second unit.

Current international co-operation

These consist of current transfers, in cash or in kind, between the governments of different countries or between governments and international organizations. This heading covers:

(a) cash transfers between governments which are intended to be used by the recipients to finance current expenditures;

(b) gifts of food, clothing or other consumer goods to alleviate hardships caused by natural disasters such as drought or earthquakes, or for other purposes;

(c) gifts of warships, military aircraft, tanks or other types of military equipment or weapons; on the other hand, gifts of machinery and equipment to be used for civilian purposes are treated as capital transfers in kind;

(d) annual or other regular contributions paid by Member governments to international organizations;

(e) transfers which international organizations make regularly each period to governments, whether Member governments or others, as a consequence of policies adopted by those organizations;

(f) payments by governments or international organizations to other governments to cover the salaries of those technical assistance staff who are deemed to be resident in the country in which they are working.

Current transfers to private non-profit institutions

73. Current transfers to private non-profit institutions consist of all regular transfers which they receive from other institutional units; that is, excluding legacies or other exceptional, large donations. Such transfers are intended to cover the costs of most, or all, of their principal activities whether the production of non-market services or the provision of financial assistance in the form of transfers to others. The transfers may consist of:

(a) regular constributions from households or corporations in the form of membership dues, subscriptions or other regular transfers from the institutional units who are members of the association (club, political party, trade union, trade association, society, etc.) which controls the non-profit institution;

(b) other regular contributions or donations from the general public or government units.

Private international transfers

74. These consist of all current transfers, in cash or in kind, between resident households or private non-profit institutions and non-resident households or private non-profit institutions. They include:

(a) regular transfers in cash, or in kind, between households in different countries: these transfers, or remittances, usually, but not necessarily, take place between related persons or persons originally belonging to the same family;

(b) transfers in cash, or in kind, between private non-profit institutions resident in different countries intended for distribution to households to relieve personal hardships caused by famine, war or other events.

Miscellaneous current transfers

75. Miscellaneous current transfers consist of all current tranfers, in cash or in kind, between resident institutional units, other than already listed under one or other of the above listed headings. It is not possible to give an exhaustive list of such transfers, and only two examples will be given by way of illustration:

(a) payments in compensation for injuries to persons or damages to consumer goods, other than those paid out in settlement of accident insurance claims. These may be *ex gratia* payments or damages awarded by courts of law.

(b) transfers resulting from lotteries, or gambling: parts of the amounts staked in lotteries or wages constitute expenditures on the services provided by gambling enterprises, but the remainder are transfers. The transfers paid to and received back from gambling enterprises will cancel out an aggregate when the gamblers all belong to the same sector, or subsectors, but this is not always the case in practice.

OTHER CAPITAL TRANSFERS

Introduction

76. In addition to taxes on capital, there are also a certain number of capital transfers, in cash or in kind, which may take place between institutional units. As already stated, a transfer of cash is described as a capital transfer when the institutional unit making the transfer treats it as a significant reduction in its net worth at the time the transfer takes place and/or the receiving unit treats the transfer as significant in its net worth at the time the transfer takes place.

77. In order to be classified as a capital transfer in the system it is sufficient for only one of the parties to the transaction to treat it as a capital transfer even if the other regards it as current. A transfer in kind is described as a capital transfer when it consists of the transfer of ownership of a capital good, land, or an intangible or financial asset (except money).

78. When a cash transfer constitutes a signficant addition to the net worth of an institutional unit it must have visible repercussions on that unit's balance sheet. It will lead either to the acquisition of new tangible, intangible or financial assets (except money) or to the extinction of a previous liability. In the short-term, the unit may simply acquire interest bearing liquid assets, but a capital transfer should not remain in the form of cash. The balance sheet changes consequent upon the receipt of a capital transfer in cash should usually be readily observable. Moreover, the decision to make a capital transfer must always be a deliberate one taken for a specific purpose, and this fact helps to distinguish capital from current transfers which may be made routinely period after period. In the majority of cases in which a capital transfer is made in cash, the unit making the transfer is likely to stipulate that a particular kind of asset should be acquired, or liability extinguished, as a condition on which the transfer is made. In such cases, the transfers may be unambiguously identified as capital as their consequences are very similar to a capital transfer in kind in which the ownership of some asset is actually transferred from one unit to another.

79. Similarly, if a cash tranfer has a significant impact on the balance sheet of the unit making the transfer, it may be identified as capital. For a cash transfer to be classified as capital from the point of view of the payer, it must be accompanied by the liquidation of other kinds of assets, or the accumulation of new liabilities which show up in that unit's balance sheet. As already mentioned, it is sufficient for one party to the transaction to treat it as capital for it to be classified as capital in the system. It is not uncommon for one party to regard a transfer as capital while the other regards it as current. For example:

(a) the payment of inheritance taxes is a capital transaction from the point of view of the payer, whereas the government may regard the regular receipts of inheritance taxes from large numbers of units as current;

(b) the provision of international aid by a large developed country to a number of smaller developing countries may be regarded as current transfers from the point of view of the donor, but as capital transfers from the point of view of the individual recipients.

In both examples just given, and in other similar cases, the system classifies the transfers as capital.

80. The more important kinds of capital transfers are described in the following paragraphs.

Investment grants

81. Investment grants consist of capital transfers which are made by government units to other institutional units, to cover all or part of the costs of gross fixed capital formation undertaken by those units. The great majority of investment grants are cash transfers, but they may occasionally consist of transfers in kind. When a government unit undertakes the initial capital formation itself by purchasing capital equipment, or engaging in construction, whose ownership is subsequently transferred to another institutional unit, the transfer may be treated as an investment grant in kind.

82. Investment grants may be made to owners of unincorporated enterprises or to publicly or privately owned corporations or quasi-corporations. They may also be made to non-resident units in respect of gross fixed capital formation undertaken in other countries. Such grants must be made directly to the institutional units which actually incur the costs of the capital formation and do not cover general grants made to foreign governments which may be used for other purposes as well as financing investment.

83. The payment of an investment grant may be made in a series of instalments, especially when the process of capital formation itself extends over a long period of time: for example, a large construction project. The instalment payments must be treated as capital transfers, and not current transfers, even if they are recorded in a succession of different accounting periods.

Debt cancellations

84. When a creditor and a debtor formally agree between themselves to extinguish part, or all, of a financial claim which the creditor has over the debtor by cancelling part, or all, of that claim, the amount cancelled - i.e. the amount of the debt written off - is recorded in the System as a capital transfer from the creditor to the debtor. The balance sheets of both parties are adjusted accordingly to show a reduction in the creditor's financial assets and an equal reduction in the debtor's liabilities. Debt cancellations may be recorded between resident and non-resident institutional units.

85. However, when a creditor writes off the value of loan unilaterally in his balance sheet without the financial claim actually being extinguished by formal agreement between the creditor and the debtor, no transfer should be recorded either in the flow accounts or balance sheets of the System. It should be noted

that although debt cancellations involve the extinction of financial assets, they do not consist of cash transfers. They must be classified as capital transfers in kind.

Other capital transfers

86. Other capital transfers consist of transfers, in cash or in kind, which lead to significant changes in one or more of the assets and liabilities which make up the balance sheets, of one, or both, parties to the transfer. They may take various forms, of which some examples are given below.

(a) Payments in compensation for severe injuries to persons affecting their lifetime earnings or damages to capital assets, other than those paid out in settlement of accident insurance claims. The payments may be made *ex gratia* by the units responsible, or by government units, or they may be awarded as damage by courts of law. They may take place between resident and non-resident units. They include payments of compensation for damages caused by major explosions, crashes, maritime collision, oil spillage, etc.;

(b) Transfers from government units to publicly or privately controlled enterprises to cover large operating deficits accumulated over several years;

(c) Transfers from central government to units at lower levels of government to cover some, or all, of the costs of gross fixed capital formation, or, large expenditure deficits accumulated over several years;

(d) Legacies or large gifts *inter vivos*, and also legacies or exceptionally large donations to private non-profit institutions from households or corporations.

The boundary between current and capital transfers

87. There may be cases in which it is difficult to decide on the evidence available whether to classify a cash transfer as current a capital. When there is serious doubt it is recommended that the transfer should be classified as current rather than capital. It should be noted, however, that the decision as to which way to classify a transfer has important consequences for the allocation of gross saving between sectors and subsectors, and even between the economy as a whole and the rest of the world.

88. Other things being equal, a current transfer increases the gross saving of the recipient and reduces that of the donor, whereas a capital transfer does not affect the saving of either party. If, therefore, cash transfers are incorrectly classified between current and capital, it is possible that savings behaviour recorded for the units, subsectors or sectors involved will be anomalous and misleading for purposes of economic analysis.

CHAPTER IX: FACTOR INCOMES AND PROPERTY INCOMES*

Introduction

1. This chapter is concerned with the two main types of income distinguished in the System, namely factor incomes and property incomes. Unrequited transfers are dealt with in a separate chapter. Factor incomes are incomes which are earned by factors of production in return for their participation in processes of production, while property incomes are incomes received by the owners of various kinds of assets in return for placing those assets at the disposition of other institutional units. The various kinds of income covered in this chapter are summarized below:

Factor incomes

(1) Compensation of employees;

(2) Net operating surplus.

Property incomes

(1) Net rent on land;

(2) Royalties on intangible assets;

(3) Nominal interest and dividends;

(4) Withdrawals of income from quasi-corporations;

(5) Retained earnings of direct investment enterprises.

Introduction

2. Factor incomes are generated directly by processes of production. They are the incomes which accrue to institutional units in return for the contribution they make to production processes. The first type of factor income consists of compensation of employees - i.e., the remuneration received by employees in return for work done - while the second type consists of the net operating surplus i.e., the residual funds accruing to the owner, or owners, of an enterprise after deducting all operating costs and taxes on production from the value of the output produced. The operating costs of a production process are equal to the sum of intermediate consumption, capital consumption and compensation of employees. Conceptually, therefore, these two types of income are quite different from each other, one being measured as the sum of actual or imputed transactions between different institutional units, and the other derived as the ultimate balancing item within the framework of a production account.

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the author.

COMPENSATION OF EMPLOYEES

3. Compensation of employees consists of all actual and imputed payments in cash or in kind made by enterprises to their employees in remuneration for work contributed to the enterprise's processes of production during the relevant period.

The employment relationship

4. The relationship of employer to employee exists when there is an agreement, which may be formal or informal, between an enterprise and a person, normally entered into voluntarily by both parties, whereby the person works for the enterprise in return for remuneration in cash or in kind which is normally based on either the time spent at work or on some other objective indicator of the amount of work done. The employment relationship may take many different forms which are too numerous to enumerate. It is useful, however, to clarify the status of certain categories of person for whom there may be some doubt as to whether they should be classified as employed, self-employed or unoccupied.

1. Owners of unincorporated enterprises, partners and members of producers co-operatives are self-employed, i.e. enterpreneurs, even though they may work alongside their own employees and perform similar work to their employees.

2. Workers who are engaged on production for their own consumption, or own capital formation, either individually or collectively, are self-employed. Although a value is imputed for the output of own account production as defined in the System, no imputation is made for the wages of workers engaged in such production, even in the case of collective, or communal, projects undertaken by groups of persons working together.

3. Unpaid family workers, including those who work in unincorporated enterprises which are engaged wholly or partly on market production, are also not treated as employees.

4. Students in their capacity as consumers of educational or training services are not employees. However, except for primary and secondary schools, most enterprises which provide educational or training services are also engaged on other forms of production. On the one hand, most business enterprises provide some kind of training for their employees, while, on the other hand, universities whose principal function is to teach also engage in research, consultancy or advisory work as secondary activities. If the relationship of a student to the enterprise or institution providing the tuition or training is strictly confined to consuming the services provided, then the student is evidently a consumer and not an employee. However, if students also have a formal commitment whereby they contribute some of their own labour as an input into the enterprises process of production - for example, as apprentices or similar kinds of worker trainees, articled clerks, student nurses, research or teaching assistants, hospital interns, etc. - they must be treated as employees, whether or not they receive any remuneration in cash for the work which they do.

5. Outworkers may be either employees or self-employed depending on their exact status and circumstances. It is therefore necessary to specify the treatment of outworkers in more detail.

Outworkers

5. An "outworker" is a person who agrees to work for a particular enterprise or to supply a certain quantity of goods or services to a particular enterprise, by prior arrangement or contract with that enterprise, but whose place of work is not within any of the establishments which make up that enterprise. The enterprise does not control the time spent at work by an outworker and does not assume responsibility for the conditions in which that work is carried out, although it may carry out checks on the quality of work. Most outworkers work at home but may use other premises of their own choice. Some outworkers are provided by an enterprise with the equipment or materials, or both, on which they work, but other outworkers may purchase their own equipment or materials, or both. In any case, outworkers have to meet some production costs themselves: for example, the actual or imputed rent on the buildings in which they work; heating, lighting and power; storage or transportation; etc.

6. Outworkers have some of the characteristics of employees and some of the characteristics of self-employed workers. The way in which they are to be classified is determined primarily by the basis on which they are remunerated. A distinction can be drawn between two cases which, in principle, are quite distinct from each other:

(a) The person is remunerated directly, or indirectly, on the basis of the amount of work done - that is, by the amount of labour which is contributed as an input into some process of production - irrespectively of the value of the output produced or the profitability of the production process. This kind of remuneration implies that the worker is an employee; or

(b) The income received by the person is a function of the value of the outputs from some process of production, irrespectively of the amount of work done.

7. In practice, it may not always be so easy to distinguish between employees and self-employed on the basis of this criterion. If the worker is not an employee, it follows that he or she must be the owner of an unincorporated enterprise. Owners of unincorporated enterprises need to be divided into two groups in this context: those who have paid employees of their own and those who have no paid employees. The first group are described as "employers" and the second group as "own-account workers". It should be noted that own-account workers may be engaged in production for sale on the market, on production for own consumption or own capital formation, or on both kinds of production.

8. Outworkers who have paid employees of their own are obviously employers and are treated as owners of unincorporated enterprises. The issue, therefore, is to distinguish outworkers who are own-account workers from outworkers who are employees.

9. An outworker is considered an employee when there exists an employment relationship between the enterprise and the outworker of the kind described in paragraph 4 above. This implies the existence of an implicit or explicit contract or agreement whereby it is agreed that the outworker is remunerated on the basis of the work done.

10. An outworker is considered to be an own-account worker when there exists no implicit or explicit contract or agreement of employment so that the income earned

by the outworker depends on the value of his or her sales of goods or services to the enterprise. In particular, when there is no kind of employment contract and decisions on markets, scale of operations and finance are in the hands of the outworker, or the outworker owns, or rents, the machinery or equipment on which he or she works, the outworker must be considered as an own-account worker.

11. The treatment of outworkers has important consequences for the accounts. When the outworker is an own-account worker, the payment from the enterprise to the outworker constitutes a purchase of goods and services for purposes of intermediate consumption by the enterprise. When the outworker is an employee, the payment constitutes compensation of employees which forms part of the gross value added of the enterprise. Thus, the way in which outworkers are treated affects the distribution of value added between enterprises as well as the distribution of factor incomes between compensation of employees and the net operating surplus.

12. Moreover, for purposes of sub-sectoring the Household Sector, the distinction between owners of unincorporated enterprises who are employers and those who are own-account workers is important, as households whose reference persons are employers constitute one sub-sector while households whose reference persons are own account workers constitute a separate sub-sector.

The coverage of compensation of employees

13. Compensation of employees consists of two main components, namely:

(a) Payments of wages and salaries to employees in cash or in kind;

(b) Actual or imputed contributions paid by employers on behalf of their employees to Social Security Schemes or to private insurance enterprises or pension funds to secure social benefits for their employees.

14. Compensation of employees does not include any taxes on production which take the form of a tax on the number of employees or on the total wage and salary bill - e.g. a payroll tax. Such taxes are treated in the same way as other taxes levied on inputs as taxes on the machinery, equipment, buildings or land used in production. These all constitute taxes on production which are levied on the employer. Thus, compensation of employees does not cover all the labour costs incurred by the employer.

15. Wages and salaries consist of that part of compensation of employees which an enterprise is deemed to pay directly to its employees as distinct from that part which is paid to third parties (compulsory social security schemes, private pension or insurance schemes, etc.) on behalf of its employees. Wages and salaries may take a wide variety of different forms and the same employee may receive several different kinds of remuneration from the same enterprise during a single accounting period. Wages and salaries include remuneration in kind as well as cash; that is, the employer may provide goods or services to his employees instead of, or in addition to, paying remuneration in cash. Goods and services which are provided as remuneration in kind should, in general, be valied at what they cost the employer to produce or purchase them.

16. Although it is not possible to give an exhaustive listing of all the various different kinds of wage and salary payments, it may nevertheless be useful to indicate the main types.

Wages and salaries paid in cash

(a) Wages or salaries paid at regular weekly, monthly or other intervals, including payments by results and piecework payments: enhanced payments or special allowances due to working overtime, at nights, at weekends or other unsocial hours; allowances for working away from home or in disagreeable or hazardous circumstances; expatriation allowances for working abroad; family or educational allowances paid directly and regularly by the employer; and so on;

(b) Payments of wages or salaries to employees while they are not able to work for short periods of time because of holidays, sickness or accident, or other exceptional factors when the continued payment of wages or salaries in these kinds of circumstances is part of the agreed conditions of employment. Payments by employers covering prolonged periods of absence (more than two months) should be treated as social benefits and not wages or salaries;

(c) *Ad hoc* bonuses or other exceptional payments linked to the overall performance of the enterprise which are made under incentive schemes;

(d) Commissions, gratuities and tips received by employees: these should be treated as payments for services rendered by the enterprise employing the worker, and should therefore also be included in the gross output and gross value added of the employing enterprise when they are paid directly to the employee by a third party.

Wages and salaries paid in kind

17. It is common for employers to remunerate their employees at least partly in kind rather than cash. There are various reasons for this practice: for example,

(i) The nature of the work may be such as to require frequent, or prolonged, absence from home so that the employer is obliged to provide the employee with food, accommodation, travel, etc.;

(ii) There may be tax advantages for the employer, the employee, or both in avoiding payments in cash;

(iii) The employer may wish to dispose of goods or services which are periodically in excess supply; e.g. airlines or railways may provide free travel to their employees at off-peak times;

(iv) The employer may try to make it more difficult for the employee to change jobs by offering services or benefits which may be lost if the employee moves; e.g. by providing accommodation which is "tied" to the employment or non-transferable pension rights.

18. Income in kind is generally worth less to the employee than income in cash of equal nominal value because the employee has no choice as to how to spend income received in kind. Some of the goods or services which the employer provides to his employees may be of a kind or quality which the employee would normally never choose to buy of his own free will. Nevertheless, it is not recommended to try to adjust the value of goods and services supplied in kind for this reason. When the goods or services have been purchased by the employer, they should be valued at the purchaser's price paid by the employer; when they have been produced by the

employer, they should be valued at their costs of production plus any taxes on the products which the employer may have to pay.

19. In order to be treated as remuneration in kind the goods and services provided by employers must satisfy the following two conditions:

(1) They must be goods or individual services of a type which ordinary consumers actually choose to buy on the market;

(2) The goods and services must increase the real income of the employee: they must make the employee better off than if they were not provided. This implies that even if they are not the kinds of goods and services which the employee would prefer to buy, they must be goods and services from which the employee or other members of the employee's household derive some utility or satisfaction.

20. Using these two criteria, it is possible to indicate the kinds of goods and services which should not be treated as remuneration in kind when provided by employers to employees.

Exclusions from remuneration in kind

(1) Tools or equipment which the employee uses exclusively, or principally, at work;

(2) Clothing or footwear of a kind which ordinary consumers do not choose to purchase and which are worn exclusively, or principally, at work; e.g. overalls or other protective clothing and uniforms, including uniforms worn by the police and armed forces;

(3) Accommodation of a kind which ordinary households do not choose to live in: e.g. barracks for military personnel; prisons, cabins or dormitories in ships, floating platforms, etc.; huts or dormitories in compounds or camps for workers employed in special projects away from their homes; etc.;

(4) Transportation and hotel services which are utilized in connection with travel on business which the employee would not choose to undertake in his own time or at his own expense;

(5) Changing facilities, washrooms, showers etc. which are necessitated by the nature of the work; medical examinations or other checks which are required as a consequence of the nature of the work; first aid or accident facilities;

(6) The provision of recreational or sporting facilities which are used collectively by employees; the usage of such facilities by individual employees cannot be measured in practice.

21. The expenses which employers incur in providing the kinds of goods, services or other facilities listed above form part of the intermediate consumption of the enterprise. They are to be treated as costs which are incurred in order to provide the necessary conditions in which production can take place, as distinct from providing an additional incentive for workers to accept employment at a given money wage or salary rate.

22. In some cases, employees may be initially responsible for purchasing some of the goods and services listed above, being subsequently reimbursed in cash by their employers for the expenses which they have incurred. It follows that the cash reimbursements must not be treated as part of wages and salaries paid in cash.

23. Similarly, if employees are required under their terms and conditions of employment to purchase special equipment, clothing etc. of the kind listed above for use at work out of their wages or salaries, the amount paid in wages or salaries should be reduced by the amount of such purchases and the intermediate consumption of their employers increased by the same amount in the production accounts of the System.

24. It is also useful to indicate the kinds of goods and services which are frequently provided as remuneration in kind, although almost any kind of good or individual service may be involved in practice:

(1) In general, all goods or services which are produced as outputs from the employer's own processes of production and which are provided to employees must be treated as remuneration in kind;

(2) The provision of meals and drinks to employees, including those provided while the employee is travelling or working away from home; although such meals and drinks may differ qualitatively from what employees might choose for themselves, they clearly substitute for ordinary consumption expenditures which employees would otherwise incur themselves;

(3) The provision of accommodation in the form of ordinary dwellings of a kind which may be used not merely by the employee but by other members of the household to which the employee belongs;

(4) The provision of nurseries, creches, etc. for the care of children of employees while they are at work;

(5) The provision of miscellaneous consumer goods or services such as automobiles, free transportation, free car parking, etc.

(6) The provision of medical examinations or facilities which are not required by the nature of the work itself.

25. The treatment of travelling expenses incurred by employers when they transport their employees to and from their place of work each day is a borderline case. Most employees have to spend their own time and money, and often considerable amounts of their own time and money, getting to and from their place of work. Such expenditures are treated as part of final consumption expenditures in the System. The levels of the wages and salaries paid to employees who have to travel large distances are often higher in order to compensate for the extra costs involved, but the extra amounts implicitly paid to cover the extra travel costs are not deducted from actual wages and salaries in the System. For these reasons, it would be inconsistent to treat the small minority of workers who have their transportation provided by their employer differently by not treating such transportation as a provision of a service which is included in remuneration in kind. The provision of free transportation to and from work may represent a considerable convenience to the employee, especially compared with the great majority of workers who enjoy no such convenience. Thus, on balance, it is preferable to treat free transportation

to and from work each day as the provision of a service which is to be included in remuneration in kind.

26. There is one form of remuneration in kind which does not actually take the form of the provision of a good or service. It consists of the provision of loans by employers to employees at zero, or greatly reduced, nominal rates of interest for purposes of buying houses, furniture or other major expenditures. In this case, the remuneration in kind takes the form of the cancellation of an interest payment which is due from the employee to the employer. The amount involved may be considerable in a situation of high inflation when nominal interest rates are high. In such cases, a value should be imputed for the difference between the amount of interest which would be paid at market rates of interest and the interest actually paid, if any, and this value should be included as part of compensation of employees. A matching imputation is then required in the income and outlay account of the household whereby the employee is deemed to pay the imputed interest back again to the employer. On the other hand, the payment of any removal expenses necessarily incurred as a result of moving house to take up a post with a new employer should not be treated as remuneration in kind.

27. As already stated, the general principle used to value goods or services provided to employees as remuneration in kind is to value them at their cost to the employer; that is, the purchaser's price paid by the employer for goods or services purchased from other producers or the costs of production, including overheads and any taxes on products which may be payable, for goods and services produced as outputs by the employer himself. If the employer sells the goods or services at reduced prices, rather than zero prices, the value to be imputed should cover only the difference between the cost to the employer and the price charged to the employee.

28. The imputed values of the goods and services provided by employers as remuneration in kind are recorded under household consumption expenditures as well as compensation of employees. The imputed value of any interest charges which employers cancel for the benefit of their employees has also to be shown in the income and outlay account for households, but as imputed interest payments and not as consumption expenditures.

Employers' contributions to compulsory social security schemes

29. The contributions which employers make to compulsory social security schemes are treated as one element of compensation of employees. The contributions are actually paid directly to the government units which organize the schemes, but in the System the contributions are rerouted through households. The contribution is treated as if it were paid first by the employer to the employee who is then deemed to pay over the contribution to the organizer of the social security scheme.

30. From the point of view of the employer, the social security contributions form part of total labour costs. However, the employers' social security contributions are not usually shown on pay-slips and many employees are not even aware of their existence, let alone the amounts involved.

Other employers' social contributions

31. These consist of actual or imputed contributions made by employers to insurance corporations, autonomous pension funds or other institutional units in

order to provide benefits for their employees in the case of certain eventualities occurring, in particular:

- sickness, accident or disability
- retirement or redundancy
- other specified eventualities e.g. maternity.

32. It is necessary to distinguish actual social contributions from imputed social contributions.

(a) Actual social contributions

33. Employers' actual social contributions consist of actual payments made by employers for the benefit of their employees to insurance corporations, autonomous pension funds, or other institutional units, but excluding compulsory social security schemes. Schemes for the provision of social benefits to employees may be organized in different ways. In some schemes, payments may be made jointly by the employer and by the employee. In such cases, participation in the scheme by the employee may be optional or compulsory under the terms and conditions of employment. In other schemes, the whole of the costs of the contributions may be borne by the employer.

34. Employers' actual social contributions are rerouted in the System in the same way as employers' contributions to compulsory social security schemes. The employer's contribution is treated as if it were paid first by the employer to the employee, who is then deemed to pay over the contribution to the insurance corporation or other institutional unit. Thus, the contribution is included in compensation of employees.

(b) Imputed social contributions

35. Some employers choose to provide benefits to their employees in the event of sickness, retirement, etc. by making payments themselves directly to their employees, ex-employees or dependants out of their own funds or reserves without involving any third party, such as an insurance corporation, and without establishing a separate institutional unit in the form of a special fund or reserve for the purpose. In this situation existing employees may nevertheless be considered as being protected against the various risks or contingencies, even though no payments are being made to any third party to cover those risks. The difference between such employees and ones covered by actual payments is essentially one of appearance rather than substance. The System, therefore, requires social contributions to be imputed for such employees.

36. There is evidently a practical problem involved in estimating the appropriate amounts of such imputed contributions. The enterprise may make such estimates itself, perhaps on the basis of the contributions paid into similar funded schemes, in order to calculate its likely liabilities in the future, and such estimates may be used when available. Otherwise, the only practical alternative may be to use the actual payments made by the enterprise during the accounting period as an estimate of the imputed contributions. While there are obviously many reasons why the imputed contributions are likely to diverge from payments actually made in the same period, at least they should be of similar orders of magnitude. There are also

practical advantages in equating the imputed contributions with the actual payments made by the enterprise, as this procedure does not change the financial position of the enterprise as recorded in the accounts.

37. The steps involved in the imputation may be summarized as follows:

(i) the employer is deemed to pay to his employees as part of their compensation of employees the value of the imputed social contributions;

(ii) the employees are deemed to pay back to their employer an equal amount in the form of social contributions (i.e. transfers) as if they were paying them to an insurance corporation or autonomous pension fund: in effect, the employer is deemed to engage in insurance as a secondary activity.

National and domestic concepts

38. Compensation of employees is recorded in the accounts of the System both on a domestic basis and on a national basis. The domestic concept includes:

(1) compensation of employees paid by resident enterprises to persons who are members of non-resident households

but excludes

(2) compensation of employees paid by non-resident enterprises to persons who are members of resident households.

The national concept includes (2) but excludes (1).

39. In the accounts for institutional sectors, the compensation of employees paid by the resident enterprises (i.e., resident institutional units engaged on production) included in each sector is subdivided to distinguish between:

(i) compensation of employees paid to persons who are members of resident households, and

(ii) compensation of employees paid to persons who are members of non-resident households.

NET OPERATING SURPLUS

Introduction

40. The net operating surplus is the ultimate residual, or balancing item, in the production account. It may be defined as the balance remaining after the deduction of compensation of employees and consumption of fixed capital from gross value added at factor cost. The net operating surplus is described as the ultimate residual because a hierarchy of balancing items may be identified in the production account ranging from gross value added at producers' or basic prices, through gross value added at factor cost to the net operating surplus.

41. The net operating surplus measures the surplus or deficit accruing to the owner, or owners, of an enterprise as a result of engaging in the production of

goods or services. Although the surplus accrues to the owner or owners of a corporation or quasi-corporation, it is not usually paid out in full to the shareholders or owners of the equity, a further deliberate decision being required as to how much to distribute and how much to retain within the corporation or quasi-corporation as saving (i.e. as retained earnings).

42. Conceptually, the net operating surplus may be interpreted as the factor income accruing to the owner, or owners, of an enterprise as a result of engaging in production. It is clearly very different in nature, however, from compensation of employees, the other factor income generated by production, and the special characteristics of the net operating surplus are explained in the following paragraphs.

The properties of the net operating surplus

43. As an accounting residual, the net operating surplus does not measure the aggregate value of a set of transactions which can be observed and recorded independently of other flows in the production account. It is therefore intrinsically different from the other elements in the production account such as output, intermediate consumption, taxes or compensation of employees all of which can be measured in isolation from each other. The net operating surplus, however, is a function of all the other elements in the account so that the net operating surplus cannot be measured without knowing all the other elements. As a residual, it lacks price and quantity dimensions of its own. It does not constitute a cost of production as it does not measure the costs of using any quantifiable resource with alternative uses.

44. From an economic point of view, the net operating surplus represents the return to the owner or owners of an enterprise for assuming the risks and responsibilities of engaging in production. It should be clearly distinguished conceptually from the payments which owners of capital goods receive for permitting them to be used in production: these payments can be measured, if required, by the actual or imputed rentals which the owners of capital goods (lessors) receive from the users (lessees). The owners of enterprise, or the managers who act on their behalf, have a choice between purchasing the machinery, equipment or buildings which they use in production or renting or leasing them. In the latter case, the costs of the rentals are included in intermediate consumption so that even *gross* value added may exclude most or all of the costs of using capital goods in production. Thus, the net operating surplus is essentially a return for assuming the risks and responsibilities of engaging in production.

45. Nevertheless, there remain further charges, or expenses, which may be incurred as a result of engaging in production and which have to be covered by the net operating surplus: namely,

- net rents on land used in production;
- royalties paid on intangible assets used in production;
- Interest charges on the funds used to finance the stocks of durable and non-durable goods owned and held by the enterprise.

When the land or intangible assets used in production are owned by other institutional units, or when the funds used to finance the stocks of durable and non-durable goods held by the enterprise are borrowed from other institutional units, actual payments of property income in the form of net rent, royalties or interest, have to be made. These payments are recorded in the income and outlay account of the enterprise, however, and not in the production account. Thus, the net operating surplus is defined in the System to be a measure of the return from production which is invariant to the extent to which the owner, or owners, of the enterprise own or rent the land or intangibles used in production or utilize their own funds or borrowed funds to finance the production process. However, this should not be allowed to obscure the fact that some expenses in the form of rent, royalties or interest are generally incurred by engaging in production and that the net operating surplus needs to be large enough to cover such expenses. When the assets in question are owned by other institutional units actual payments of property income have to be made. Although the System does not require imputations to be made in respect of the notional property income received and paid on assets which are owned and used by the same institutional unit, the net operating surplus needs to be large enough to cover such notional payments of property income in order to justify the use of these assets in the production process in question. For example, if the owners of the enterprise use their own funds to finance the stocks of durable and non-durable goods held by the enterprise, they have to forgo the interest which they could have otherwise have earned by lending or investing these same funds on financial markets, so that interest charges are in fact incurred implicitly.

46. Thus, whether the owners use their own or borrowed funds, the explicit or implicit interest charges have to be covered out of the net operating surplus. It should be noted, however, that the net operating surplus only needs to be sufficient to cover explicit or implicit payments of real interest rather than nominal interest. In an inflationary situation, the extra interest charges which borrowers incur as a result of increased nominal rates of interest are not charges against production as such and they are counterbalanced by the nominal holding gains which the owners of enterprise receive on their holdings of stocks of durable and non-durable goods. These nominal holding gains may, of course, be greater or less than the increased nominal interest charges, depending upon the price changes for the individual goods or assets concerned. In principle, therefore, the excess of the nominal over real interest payments are not to be treated as charges against the net operating surplus. The distinction between real and nominal interest rates is discussed further below.

47. Finally, as already noted, while the net operating surplus is invariant to the extent to which the owners of an enterprise choose to use their own or borrowed funds to finance the enterprise's holdings of stocks of durable and non-durable goods, it is not invariant to the extent to which the owners of the enterprise choose between purchasing their own machinery, equipment or buildings and renting or leasing them. If the users of capital goods decide to rent them, the financing costs are shifted to the lessor who has to recover the costs of financing, as well as capital consumption and other operating costs, out of the rentals charged. Thus, when an enterprise rents capital goods, not only the capital consumption on those goods but also the costs of financing their purchase by the lessor are included in the rentals paid by the enterprise and hence recorded under intermediate consumption. Both gross value added and the net operating surplus are reduced accordingly compared with the situation in which the user of the capital goods purchases them himself.

The net operating surplus of unincorporated enterprises

48. The concept of the net operating surplus is even more complex for an unincorporated enterprise than a corporation, or quasi-corporation, for two reasons:

(a) It is not possible to draw a clear distinction between the stocks of durable and non-durable goods, and financial assets or liabilities, of unincorporated enterprises and those of their owners;

(b) The owners frequently work in the enterprises, possibly supplying most, or even, all of the labour inputs themselves without any compensation of employees being recorded in respect of such work done.

49. On the first point, it is well known that, in practice, capital goods such as buildings or vehicles may be used partly for business purposes and partly for purposes of household consumption. This makes it difficult to obtain satisfactory estimates of the net operating surplus of the enterprise in practice. Moreover, when the owner borrows funds, it may not be clear whether these should be treated as liabilities of the enterprise or of the owner who, in any case, is certainly liable in his personal capacity.

50. On the second point, no attempt is made in practice to impute compensation of employees in respect of the work done by owners of unincorporated enterprises, even when they do most, or all, of the work in the enterprise. No imputation is made even in the case of own-account workers as the definition of an own-account worker implies that no compensation of employees whatsoever can be recorded in the production account for the unincorporated enterprise which is owned by the own-account worker.

51. It follows that, from an economic point of view, the net operating surplus of an unincorporated enterprise must be regarded as a mixture of two quite different kinds of income when the owner, or owners, put in work of exactly the same kind as could be contributed by paid employees. In these circumstances, the net operating surplus, as measured, consists partly of a return for assuming the risks and responsibilities of entrepreneurship and partly of remuneration for work done. The latter component is likely to be predominant for unincorporated enterprises owned by own-account workers, at least those engaged exclusively on production for own consumption, such as subsistence farmers.

52. Thus, the net operating surplus of an unincorporated enterprise may contain a substantial element reflecting remuneration for work done by the owner, or owners, which is not present in the net operating surplus of a corporation, or quasi-corporation. For this reason it is recommended that the net operating surpluses for the following three kinds of enterprises should always be shown separately from each other whenever they appear in the same table or account:

(1) the net operating surpluses of corporations and quasi-corporations;

(2) the net operating surpluses of unincorporated enterprises with paid employees - i.e. owned by an "employer";

(3) the net operating surplus of unincorporated enterprises without paid employees preferably sub-divided into:

(i) the net operating surpluses of owners of owner-occupied dwellings,

(ii) the net operating surpluses of "own-account workers".

PROPERTY INCOMES

Introduction

53. Property income is generated by the ownership of certain assets when they are placed at the disposition of other institutional units. There are two main kinds of property income distinguished in the System.

(1) The first type of property income consists of the payment received by the owner of land, or money, for placing it at the disposition of another institutional unit to whom the rights of ownership have been temporarily transferred under a lease, contract, loan or other transaction between the two units concerned.

(2) The second type of property income consists of the payments which the owners of certain rights are able to demand from other institutional units in return for granting permission to those units to engage in certain specific activities, or to produce certain specific goods and services, which those units would otherwise be prohibited from doing.

54. In practice, property incomes consist of net rents from land, royalties from intangible assets, and interest and dividends, including withdrawals from the income of quasi-corporate enterprises.

55. By no means all assets are capable of generating property incomes for their owners. A major distinction is drawn in the System between:

(a) the receipt of property incomes as a result of renting land or lending funds, and

(b) the receipt of rentals as a result of leasing durable goods.

Rentals are treated as payments for services rendered and not as property incomes. The treatment of leasing is described in a separate section (where the distinction between operating and financial leasing is elaborated), but it is useful to explain here why certain assets generate property incomes while others do not. The assets which generate property incomes have four characteristics which may be summarized as follows:

(1) the assets have not been produced as outputs from processes of production as defined in the System: they do not, therefore, include durable producer or consumer goods;

(2) the acquisition of the assets by the owners cannot therefore be treated as gross capital formation;

(3) the use of the assets does not therefore entail capital consumption;

(4) the action of the owner in placing the asset at the disposition of another institutional unit is not itself considered to be a productive activity - that is, an ongoing process of production with an output of its own.

56. The fourth condition is the most important and it is a necessary condition for the associated payment to be a form of property income. It means that placing the asset (in effect, land or money) at the disposition of another institutional unit cannot be treated as if it were the production of a service, so that the payment cannot be treated as the purchase of a service.

57. On the other hand, when the owners of machinery, equipment or buildings place them at the disposition of other institutional units under operating leases the conditions under which they do so are precisely the opposite of those just listed above.

(1) the capital assets in question are all durable goods which have been produced as outputs from processes of production;

(2) the acquisition of such assets by their owners, whether by purchase or own-account production, constitutes gross fixed capital formation;

(3) the use of such goods involves capital consumption which must, however, be attributed to a process of production in which the owner, or lessor, is engaged;

(4) the action of the owner, or lessor, in placing the good at the disposition of the user is itself an ongoing, continuing process of production with its own output in the form of a service provided to the lessee.

58. As explained elsewhere, operating leasing is a clearly recognizable form of productive activity for which a proper production account can be compiled. However, the renting of buildings may not always involve the same amount of productive activity. Thus, the distinction between property income in the form of net rent on land and the sale of a service in the form of the rental on a building can become a fine one in practice, especially when there is little capital consumption and when the tenant is liable to carry out repairs under the terms of the lease.

59. The following are devoted to the six main types of property income distinguished in the System: namely,

(i) the net rents received by owners of land;

(ii) the royalties received by owners of intangible assets;

(iii) interest;

(iv) dividends;

(v) withdrawals of income from quasi-corporate enterprises;

(vi) retained earnings of direct investment enterprises.

Rents on land

60. When one institutional unit A transfers ownership rights over land temporarily to a second unit B, A is described as the landowner while B is the tenant. The tenant pays a "rent" (as distinct from a "rental") to the landowner in order to be able to utilize the land for production or other purposes. Land is defined as the ground itself including any sub-soil assets below ground when ownership of the ground legally entitles the owner to exploit those sub-soil assets. Land is defined to exclude any buildings or other structures situated thereon. Land also includes forests and any inland waters over which property rights can be exercised.

61. Land is treated in the System as a unique kind of asset. It is an asset, the stock of which in existence is largely fixed. Most land has not been produced as the output from some process of production. By engaging in production it may be possible to improve the quality of land significantly and even to reclaim land from the sea, while it is also possible to degrade the quality of land for agricultural or other purposes by ill usage. However, such changes in the stock of land are marginal compared, for example, to changes in the stock of buildings or other structures as a result of new construction, demolition or destruction. Major improvements in the quality of land, or land reclamation, which result from construction activities, such as building dykes, dams, irrigation canals, roads, etc., are nevertheless treated as gross fixed capital, even when the output of the construction is reflected primarily in an increase in the value of the land itself rather than in new structures which can be bought or sold separately from the land itself.

62. Sales and purchases of land have to be treated as transactions in existing assets which are not connected with production and which serve simply to redistribute the ownership of land. The payment of property income which a tenant makes to a landowner is treated in the System as a charge which the tenant has to meet out of his net operating surplus. In effect, as a result of the contract between the landowner and the tenant, the landowner has a claim upon part of the net operating surplus generated by using his land in production.

63. A landowner may be liable to pay land taxes or incur certain expenses solely as a consequence of owning the land. By convention, the System treats such taxes or other expenses as being paid by the tenant who is therefore deemed to deduct them from the rent he actually pays to the landowner. Rent reduced in this way by taxes or other expenses for which the landowner is liable is described as "net rent". By adopting the convention that the tenant pays only the net rent to the landowner, such taxes or expenses are recorded on the production account of the tenant. This treatment does not change the net operating surplus of the tenant, but it may change the tenant's gross value added at market prices and at factor cost. The Convention avoids the necessity to create a notional enterprise for the landowner if the landowner is not engaged in any other kind of business.

64. As already explained, the System treats payments of rent on land in a totally different way from payments of rentals on buildings. A landowner receives property income in the form of rent, whereas the owner of a commercial building or dwelling receives a payment for rendering a service whose production is included as part of GDP. In practice, however, a single payment may cover both rent and rentals if an institutional unit rents the land on which a building or buildings are situated together with the building or buildings themselves in a single contract, or lease, in which the two kinds of payments are not differentiated from each other. For example, a farmer may rent a farmhouse, farm buildings and the farmland in a single

contract for which a single payment of "rent" is made to the owner. If there is no objective basis on which to split the total payment between rent on land and rental on the buildings, it is recommended to treat the whole payment as if it were a rental on the buildings and not as property income.

Royalties from intangible assets

65. Intangible assets, as understood in the System, may be described as rights which entitle their owners to engage in certain specific activities, or to produce certain specific goods or services, which other institutional units are prevented by law, or for other reasons, from doing except with the permission of the owner. Property income in the form of a royalty is generated when the owner actually grants such permission to other institutional units. Royalties may therefore be defined as payments which the owners of certain rights are entitled to demand from other institutional units in return for granting permission to those units to engage in certain specific activities, or to produce certain specific goods or services, which those units would otherwise be prohibited from doing. It is useful to summarize the various different kinds of rights involved:

(1) The right to exploit sub-soil assets or mineral deposits, including those in international waters; the right to engage in other kinds of activities such as public transportation, or fishing or hunting in certain locations, etc.;

(2) The right to use certain specific production processes or industrial designs or models or to produce certain designated kinds of goods or services; these rights are usually embodied in patents, trademarks, brand names, franchises or similar instruments which may be created by process of law or, at least, recognized by law;

(3) The right to produce and sell copies of an existing unique good such as a book, musical work, painting, play, drama, musical performance, sporting event, computer program, etc. whether the original is recorded on paper, film, magnetic tape, disk, diskette, or other material.

66. The first group of rights come into existence either as a result of a government fiat or decree or because some institutional units already own the land whose sub-soil assets, mineral deposits, rivers, or other features other institutional units wish to exploit without purchasing the land outright. The second group of rights come into existence as a result of the discovery or development of new types of product or new methods of production which are protected by patents or similar instruments for a number of years. The third group come into existence as a result of the production of a unique product - a new book, film, musical performance, computer program, etc. - over which the author, composer, writer, producer, etc. can claim copyright.

67. Property income is generated when the owner of any of the rights described above receives regular payments, i.e. royalties, from one or more institutional unit in return for permitting those units to engage in the activities, or produce the goods or services, which they are prevented from doing without the explicit approval of the owner. Royalties are treated as property income and not as receipts from the sale of services because the act of granting permission for others to engage in production is not, in itself, a process of production with an

output of its own. When receiving a royalty, the owner of the right is not himself, or herself, actually providing an input into process of production out of whose value added the royalties is paid.

68. Royalties are usually calculated as percentages of the value of the sales or output of the institutional unit which is authorized to engage in production by the owner of the right, or intangible asset. The ownership right itself remains vested in the owner, notwithstanding the payment of royalties. On the other hand, the ownership rights are frequently also marketable: that is, they are capable of being transferred from one institutional unit to another by sale or gift. However, there may be certain kinds of copyrights which are inalienable in certain countries and which cannot therefore be sold or transferred. The outright sale of an intangible asset does not, of course, give rise to an income flow, such transactions being recorded in the capital accounts of the System. Goodwill which is specific to one single producer and which is not transferable should not be treated as an intangible asset as it cannot give rise to the receipt of a royalty.

69. Patents or copyrights usually come into existence as a consequence of processes of production undertaken by enterprises. However, it should be noted that the patents and copyrights themselves are not goods or services as understood in the System and they do not constitute the outputs from such processes. Indeed, the existence of these rights as intangible assets in the balance sheets of the System is recognized only if they are sold by their creators, in which case they appear in the balance sheet of the purchaser. As these rights are not produced as outputs of goods or services they cannot be included in gross capital formation. The exploitation of these rights does not therefore lead to any capital consumption, although it is clear that the present, or discounted, value of the future royalties from certain types of intangible assets may decrease significantly as a consequence of their being exploited.

INTEREST ON LOANS, BILLS, BONDS OR SIMILAR ASSETS

70. From a conceptual point of view, a loan can be regarded as a contract, or agreement, whereby one institutional unit transfers funds temporarily to another unit in return for a payment which is described as "interest". A lender places funds at the disposal of a borrower for a specified period of time during which the borrower is usually able to use the funds for whatever purposes he requires, and not necessarily production. The loan is frequently due to be repaid by the end of an agreed period of time, but this is often shortened, or extended, by mutual agreement between the lender and borrower. The borrower can usually repay in advance of the agreed date without penalty if he wishes.

71. There is strong formal similarity between an arrangement of this kind and one in which one institutional unit rents land to another institutional unit for a specified period of time in return for a payment. Placing funds, or land, at the disposition of another institutional unit may facilitate production by that unit, but it does not itself constitute a separate act of production with an output of its own. The receipt of interest is analogous to the receipt of net rent from land and it is therefore treated as a form of property income in the System.

72. There are very many ways in which one institutional unit may arrange to lend funds to another. Some of the contracts by which loans are arranged give rise to negotiable instruments which the lender may sell on the market while others do

not. It is simpler to start by considering ordinary loans which do not give rise to marketable financial instruments.

Loans

73. As already stated a loan normally takes the form of a contract, or agreement, between two institutional units whereby one unit, the lender or creditor, places a sum of money, denoted by L, at the disposal of the other unit, the borrower or debtor, for a specified period of time after which the borrower or lender is obliged to repay the same sum. Assume initially that the loan is for one year after which it is repaid. The money, denoted by c, which the debtor pays to the creditor in return for use of those funds over the year is the interest paid on the loan. The annual rate of interest, denoted by r, is in this simple example equal to $\frac{c}{L}$. If the loan is for a period other than a year, it is a matter of simple arithmetic to convert the rate of interest paid per month, quarter or other period to an annual rate, if preferred.

74. Most loans are arranged in such a way that the debtor may discharge the liability to the creditor by repaying funds equal in money value to those borrowed, even when the general purchasing power of those funds may have changed as a result of inflation. The cash interest payments made on loans arranged on these terms are described as "nominal interest" payments. These do not represent the "real" return to the creditor for the use of his funds when the purchasing power of the funds repaid at the end of the loan is different from that at the commencement of the loan. If the funds which the debtor had to pay to discharge his liability had to be equal in purchasing power to those which were borrowed, the associated interest payments would be described as payments of "real interest".

75. In the System, payments of nominal interest are treated as a form of property income and recorded as such in the accounts. In practice, most liabilities incurred between institutional units are denominated in monetary terms and these give rise to actual monetary transactions which have to be recorded in the accounts. Unless, therefore, it is specifically stated to the contrary, it must be understood that interest refers to nominal interest.

76. The difference between nominal and real interest payments depends on the rate of inflation, and when there are persistently high rates of inflation it becomes increasingly difficult to ignore the loss of purchasing power on assets or liabilities denominated in fixed monetary terms. The System therefore calls for the provision of the information on such holding losses, as described later.

77. As already stated, except possibly situations of chronically high inflation, most loans are arranged in such a way that the debtor's liability remains fixed in monetary terms. Loans arranged in this way include many common types of loan, such as:

Bank loans and advances: i.e. general loans from depository institutions to their customers;

Bank deposits and savings deposits: i.e. loans from institutional units to depository institutions in the form of deposits with those institutions;

Mortgages or other housing loans: i.e. loans from depository institutions, for purposes of purchasing houses;

Consumer credit: loans to households for purposes of consumption expenditure.

78. The above list is merely illustrative of ordinary loans which do not give rise to a negotiable financial instrument. The nominal interest payments received by creditors on such loans are treated as receipts of property income in the System.

Bills and bonds

79. A second way in which an institutional unit may borrow funds is by the borrower arranging a contract with the lender which gives rise to a negotiable financial instrument which the lender may sell on the market to a third party prior to the repayment of the borrowed funds. Such instruments are generally described as bills or bonds. A bill or a bond is a security issued by the borrower of funds which entitles the holder of the security to receive either one, or both, of the following kinds of payments:

(a) the holder may be entitled to a fixed sum of money equal to the face value of the bill or bond at a specified future date when the bill or bond matures: the issuer, or borrower, is obliged to redeem, i.e. repurchase, the bill or bond at its face value at this point;

(b) the holder may be entitled, through coupons attached to the bond, to a sequence of cash payments, usually every year or half year. These payments are frequently constant money amounts, but not always so.

80. It is necessary to specify the exact treatment of these payments in the System.

Bills

81. A bill is a short-term security to which only condition (a) normally applies, the issuer being simply contracted to repurchase the bill at the end of a stated period such as three months, six months or one year. Consider the case in which the issuer is contracted to repurchase, or redeem, the bill for its face value of F one year after issue. As the issuer does not contract to make any other payment, it follows that the bill will have to be issued at a discount: that is, sold for a sum L which is less than F. The higher the rates of interest which potential creditors can obtain by lending funds elsewhere, the less they will be prepared to pay for the bill and the lower L will be.

82. The amount of funds which the issuer of the bill is actually able to borrow is given by L, the amount he receives from the purchaser of the bill. When the issuer redeems the bill he pays an amount F which conceptually can be regarded as the repayment of the amount L which he has borrowed plus a nominal interest payment of (F-L). In the case of a one-year bill, therefore, the annual nominal rate of interest, r, is equal to $\frac{F-L}{L}$. For bills of shorter duration, the rate of interest can be calculated in the same way and then expressed at an annual rate if preferred. The nominal interest on a bill calculated in the way just described is treated as a form of property income in the System.

83. It should be noted that the increase in the market value of the bill from L to F cannot be treated as a nominal holding gain due to price changes. This increase is a condition on which the loan is made which is known with complete certainty when the lender purchases the bill for L, because the issuer is legally required to redeem it at its face value of F. The increase is the return to which the lender becomes entitled when he puts his funds at the disposal of the borrower for a specified period of time, and it is clearly a form of property income.

Bonds

84. A bond is a long term security to which both conditions (a) and (b) above are normally attached. In order to clarify the general treatment of bonds, however, it is necessary to explain the treatment of certain special types of bond.

Zero-coupon bonds

85. The first special case is that of a bond which could be described as a long term bill. It is a so-called zero-coupon bond on which no cash payments are due until the eventual redemption date some time in the future: in other words, only condition (a) above is attached to such a bond. A zero-coupon bond has to be issued at a price which is well below the face value at which it is due to be redeemed if it does not mature until several years have elapsed.

86. The gradual increase in the value of a zero-coupon bond over its life is a form of property income which accrues as a result of putting funds at the disposal of another institutional unit over a long period of time, in much the same way as the nominal interest payments received on a long term loan. It is necessary, therefore, to distribute the total interest earned over the individual years which make up the total life of the bond. Normally, the System requires interest to be recorded when it is due for payment on the assumption that interest is paid out at stated times, such as every month, quarter, half-year or year. If the interest is not paid out in this way but automatically reinvested and allowed to accumulate over a period of several years it is still necessary for the accounts to recognize the fact that the interest is actually being earned continuously over the entire life of the bond as the difference between the issue price and redemption price depends directly on the length of time which elapses between issue and redemption. In order to be able to calculate the nominal interest accruing each year on a zero-coupon bond it is simply necessary to know the nominal rate of interest on the bond, which may be assumed to be constant over the life of the bond.

87. Let the issue price of the bond (i.e. the amount initially borrowed) equal L as before, and let its redemption price at the end of year n (i.e. the face value of the bond) equal F. Given a nominal rate of interest of r over the life of the bond, and given that nominal interest payments are automatically borrowed back again, it follows that

$$F = L\,(1 + r)^{n}$$

$$\text{so that } r = \left(\frac{F}{L}\right)^{\frac{1}{n}} - 1$$

88. As F, L and n are all known, r can easily be calculated. In practice, r is bound to be equal, or very close, to the market rate of interest at the time the bond is issued, as it is the market rate of interest which determines ratio of the issue price L to the face value F. The imputed nominal interest payment received by the holder of the bond in year i, where i = 1, 2, ... n, is equal to $rL(1 + r)i-1$. Each imputed interest payment is deemed to be borrowed back again by the issuer of the bond, so that the value of the borrower's liability grows steadily from L to F at a rate over the life of the bond. Thus, the imputation of nominal interest is matched by an equal imputation to cover the lending of the interest by the holder of the bond to the issuer of the bond. The liability of the issuer of the bond to the holder of the bond at the end of year i is equal to $L(1 + r)i$.

Bonds issued at par

89. The second special case is that of a bond which is issued at a price L which is equal to its redemption price, or face value, and which carries coupons which entitle the holder to a fixed cash payment of c each year over the life of the bond. In this case the cash payments of c are treated as payments of nominal interest, and the nominal rate of interest r is equal to $\frac{c}{L}$. The important feature of this case is that when the issue and redemption prices coincide, and a sequence of annual cash payments are made, a bond may be treated in the same way as an ordinary loan (except for the fact that a bond is a marketable security whereas a loan is not). The cash payments are the exact equivalent of payments of nominal interest on a loan.

Discounted and deep-discounted bonds

90. The third case is the general one in which a bond is issued at a price L, is due to be redeemed after n years at its face value of F, and which also carries coupons entitling the holder to a sequence of cash payments equal to c each year over the life of the bond. In this case, the nominal interest received each year by the holder of the bond has two components, namely:

(i) the cash payment of c from the coupons; and

(ii) an imputed interest payment of

$$rL\ (1 + r)^{i-1}$$

where r is equal to $\left(\frac{F}{L}\right)^{\frac{1}{n}} - 1$

in this case, the nominal rate of interest on the bond is equal to

$$\left(\frac{c}{L} + r\right)$$

which may be expected to equal the market rate of interest at the time the bond is issued.

91. If L does not diverge much from F the imputed interest may be so small as to be negligible in practice. The circumstances in which L may diverge substantially from F are when the cash interest payments c, as a percentage of the face value F, are seriously out of line with market rates of interest on similar securities. There may often be little point, or advantage, in fixing c and F in such a way that they are seriously out of line with market rates, so that most bonds are issued only at slight discounts, or premiums. However, new financial instruments have evolved including the so-called deep-discounted bond on which the cash interest payments are so low in relation to the face value F that the bond has to be issued at a deep discount. Such a bond may resemble a zero-coupon bond more closely than a conventional bond. It may be issued with the deliberate intention of trying to blur the distinction between holding gains and interest payments, perhaps in order to secure tax advantages.

92. It is not possible to ignore the imputed interest on a deep-discounted bond and it is therefore proposed that the imputed interest should always be calculated on such a bond. The nominal interest flow recorded in the System is, therefore, equal to the sum of the cash interest payment and the imputed interest, calculated as described above. The holder of the bond is then deemed to reinvest the imputed interest by lending it back again to the issuer of the bond. In principle, the imputed interest should be calculated on all bonds issued at a significant discount or premium and not only deep-discounted bonds.

Perpetual bonds

93. A perpetual bond is one which offers a constant stream of cash payments in perpetuity and therefore has no redemption price F. It follows that there is no imputed interest on such a bond, and the nominal interest payments coincide with the cash payments.

Index-linked bonds

94. An index-linked bond is one in which the amount of the yearly cash payments increases in proportion to some general price index, or the redemption price F increases in proportion to some general price index. The actual amounts of interest paid on index-linked bonds are treated as payments of nominal interest in the System. The change in the redemption price of an index-linked bond is treated as a revaluation and recorded in the revaluation accounts of the System.

Debentures

95. A debenture is a security issued by a corporation which entitles the holder to a sequence of annual cash payments and usually also to a fixed sum when the debenture matures, or is redeemed. Debentures are basically similar to bonds and are therefore treated in the System in the same way as bonds, as described above.

Imputed interest received by households on their equity in life insurance reserves and pension funds

96. Insurance enterprises and pension funds invest the reserves which they hold in securities, land or other assets from which they derive property income. Most of the reserves held by insurance enterprises in respect of life insurance endowment insurance policies are credited to the policy holders while the reserves held by autonomous pension funds similarly belong to the employees with claims on those funds. The property income received in respect of such reserves therefore belongs

to these policy holders or employees. An imputation is therefore made by which this property income is deemed to be paid out to the claimants in the form of nominal interest. The claimants are then treated as reinvesting these imputed interest payments with the same insurance corporations or pension funds who add them to the reserves held on behalf of the policy holders or employees with claims on the pension funds.

Real interest

97. If a loan is contracted in such a way that the debtor is required to repay to the creditor funds equal in purchasing power to those borrowed in order to discharge his liability, the associated interest payments are said to be real rather than nominal. It is possible, however, to convert payments of nominal interest on loans denominated in monetary terms to payments or real interest by calculating the loss of purchasing power on the funds which a creditor puts at the disposition of the debtor. Such a loss constitutes a real holding loss from the viewpoint of the creditor and a real holding gain from the viewpoint of the debtor. The value of this loss over a given period of time can be calculated by multiplying the value of the funds loaned over that period by the proportionate increase in some general price index, such as the consumer price index or the price index for final domestic expenditures, over the period in question.

98. Once the loss of purchasing power has been calculated, it is possible to treat the actual payment of nominal interest as consisting of two distinct components:

(1) The payment of a capital transfer from the debtor to the creditor equal to the loss of purchasing power on the funds borrowed as compensation for the creditor's real holding loss. This payment cannot be treated as if it were an imputed repayment of funds, however, as this would incorrectly reduce the value of the loan outstanding in monetary terms as recorded in the accounts;

(2) The remainder of the nominal interest payment after the deduction of the creditor's real holding can then be treated as the payment of real interest. This could be negative, of course.

99. The transfer under (1) must be treated as capital. If it were to be treated as a current transfer there would, in effect, be no change in the total income of the creditor, merely a shift from property income to the receipt of a current transfer, so that it would make no significant difference to the accounts whether interest were recorded in real or nominal terms.

100. It is proposed to record the real holding losses on assets denominated in monetary terms and the real holding gains on liabilities denominated in monetary terms as memorandum items to the income and outlay accounts. These real holding gains and losses have to be calculated in any case for the revaluation accounts of the System, but they are also shown "below the line" in the income and outlay accounts, so that users may judge their importance in relation to the various transactions recorded in the accounts. For certain types of analysis, especially under conditions of high inflation, users may wish to take account of those real holding gains or losses. Two points should be noted, however, about these gains and losses and the concept of real interest.

101. First, real holding gains and losses have to be calculated and shown for all assets and liabilities denominated in monetary terms and not only for those assets on which payments of nominal interest are made. For example, they have to be

calculated for demand deposits and holdings of currency on which no interest is paid. In principle, holders of such assets have to be treated as receiving zero nominal interest, so that if nominal interest payments are converted to real interest payments, assets on which no nominal interest is paid have to be treated as earning a negative real rate of interest. In general, negative flows are avoided in the accounts, if possible.

102. Second, real interest payments calculated by subtracting the debtors' real holding gains from the nominal interest payments are clearly ex post measures referring to previous periods. For purposes such as the analysis of investment behaviour, however, the relevant measure of real interest is usually the ex ante measure obtained by subtracting the expected future rate of inflation from the nominal interest rate at the time the loan is contracted.

103. Finally, it should be noted that in order to take account of the real holding gains and losses on assets and liabilities denominated in monetary terms it is not necessary to make any adjustments to the payments of nominal interest as recorded in the System. The alternative is to leave payments of nominal interest unchanged but to record separately the real holding loss incurred by a creditor and the real holding gain incurred by the debtor as an imputed current transfer from the creditor to the debtor. With this treatment saving, the balancing item of the income and outlay account, is the same as it would be if interest payments were recorded real rather than nominal, both for the creditor and the debtor. This solution achieves the same analytical objective as switching from nominal to real interest payments, while avoiding the need to adjust the actual cash payments of interest and the appearance of negative flows in the accounts. However, the System does not propose the recording of imputed current transfers of this kind as a general rule, although it may be desirable to take note of such transfers under conditions of high inflation.

DIVIDENDS

104. Corporations obtain funds by issuing shares in their equity which entitle the holders to shares in the profits which are distributed and the net assets of the corporation in the event of its liquidation. Shareholders are the collective owners of a corporation.

105. In principle, the income which shareholders receive in the form of dividends is also a return for placing funds at the disposal of those corporations and is therefore treated as a form of property income in the System. The issue of shares by a corporation is an alternative way of raising funds to borrowing. It does not give rise to a liability which is fixed in monetary terms and it does not entitle the holders of the shares to any fixed income in the form of interest payments. Nevertheless, the amount which is actually paid out in the form of dividends represents a return which is justified in terms of the funds which were originally placed at the disposal of the corporation.

106. Just as corporations are understood in the System to cover a set of institutional units engaged on production which may be described by different names - private or public companies, private or public corporations, co-operatives, limited liability partnerships, etc. - dividends must be understood to cover all distributions of profits by corporations to their shareholders or owners, by whatever name the payment is called. Dividends may occasionally take the form of

an issue of shares, but issues of bonus shares which represent the capitalisation of own funds in the form of reserves and undistributed profits are not included.

WITHDRAWALS OF QUASI-CORPORATE INCOME

107. Although a quasi-corporate enterprise is treated in the System as if it were a corporation, a quasi-corporate enterprise cannot distribute profits to its owner in the form of dividends. Nevertheless, the owner, or owners, of a quasi-corporate enterprise may deliberately withdraw some or all of the income earned by the enterprise to use for other purposes, and conceptually such withdrawals are the exact equivalent of the receipt of dividends by the shareholders who own the equity in a corporation.

108. The amount which the owner of a quasi-corporate enterprise chooses to withdraw as property income will depend largely on the size of the net operating surplus earned by the enterprise but the owner may also need to take into consideration any payments (or possibly receipts) of rent, royalties or interest.

109. A quasi-corporation is most unlikely to be deemed to own shares in other corporations in its own right and independently of its owner and it cannot declare dividends, so that net receipts of dividends may be ignored in practice. Similarly, a quasi-corporation is unlikely to be deemed to own in its own right, land or intangible assets which are used by other institutional units, but it may well have to pay rent on royalties on land or intangible assets used in its own production. It may also pay, or receive, interest on bank loans or deposits, trade credit received or granted, and so on.

110. Thus, the amount actually withdrawn from a quasi-corporation may depend to some extent on any payments of rent or royalties and payments (or receipts) of interest as well as on the net operating surplus. When deciding exactly how much to withdraw, the owner has to take into account these factors in much the same way as the board of directors of a corporation in deciding how much to pay out in dividends. The withdrawal of quasi-corporate income is therefore a form of property income which might equally well be described as a "quasi-dividend". Conceptually, it is a return received by the owner of a quasi-corporation for the use by the quasi-corporation of the funds which the owner has invested in the enterprise. Withdrawals of quasi-corporate income do not, of course, include amounts withdrawn out of funds realised by the sale or disposal of its machinery, equipment, buildings or other assets or by the liquidation of accumulated reserves. Such withdrawals are treated as disinvestment in the enterprise; that is, withdrawals from the equity of quasi-corporate enterprises.

111. A withdrawal of income must be explicitly identifiable in the accounts of a quasi-corporate enterprise where it is likely to be recorded as a payment, or transfer, to an account of the owner which is kept separately from the accounts relating to the activities of the quasi-corporation itself. If the accounts of the owner and the enterprise are consolidated to the extent that such a payment or transfer cannot be identified in practice, it is futile to try to treat the enterprise as if it were a separate institutional unit from its owner and the enterprise cannot be treated as a quasi-corporation however large it may be. Such an enterprise would have to continue to be treated as an unincorporated enterprise which legally, and from the viewpoint of the System, is indistinguishable from its owner.

112. A withdrawal of income from a quasi-corporation is treated in the enterprise's accounts in the same way as the payment of a dividend by a corporation. It is an appropriation which needs to be identified separately in order to be able to measure the retained earnings, or savings, of the quasi-corporation, as distinct from the savings of its owner. When the quasi-corporation is a production unit owned by government, or the foreign branch of an enterprise, it is likely that the accounts will be sufficiently developed and articulated to permit the income and savings of the enterprise to be separated from those of its owner, but it appears to be more difficult to make such a separation for unincorporated enterprises owned by members of households.

113. The owner of a quasi-corporation may sometimes make a transfer of funds into the accounts of a quasi-corporation to cover some or all of its net operating deficit if it runs occasional losses on its production activities. In the case of a corporation, the injection of additional funds in this way would be reflected in the balance sheet in the form of an increase in the corporation's financial liabilities or an increase in equity, and quasi-corporations should be treated in an analogous fashion, which implies that the additional funds should be treated as an addition to the equity of the quasi-corporation rather than as a negative withdrawal of income. However, if the quasi-corporation is owned by government, and if it runs a persistent operating deficit as a matter of deliberate government economic and social policy, any regular transfers of funds into the enterprise made by government to cover its losses should be treated as subsidies, as explained in paragraph ... .

The retained earnings of direct investment enterprise

114. An imputed flow of property income is made in the System in respect of the retained earnings of direct investment enterprises. As explained in Chapter ... a direct investment enterprise is a corporate or unincorporated enterprise in which a single foreign investor has made a direct investment. A direct investment enterprise may be either:

(1) The (unincorporated) branch of a non-resident corporate or unincorporated enterprise: this is treated as a quasi-corporation; or

(2) A corporation in which a single foreign investor (which may, or may not, be another corporation) owns sufficient shares to have an effective voice in its management. A corporation which is a subsidiary (as defined in Chapter ...) of a foreign corporation is automatically a direct investment enterprise, but owning 10 per cent, or even less, of the equity of a corporation may sometimes be sufficient in having an effective voice in its management. A subsidiary of a direct investment enterprise must also be a direct investment enterprise.

115. Actual payments of property income may be made out of the earnings or direct investment enterprises in the form of interest, dividends, etc. or withdrawals of income from quasi-corporations. The payments which are explicitly made in these ways to foreign direct investors will be recorded in the System and in Balance of Payments Statistics as international flows of property income. However, the System also requires that the undistributed, or retained, earnings of direct investment enterprises should be treated as if they were distributed and remitted to foreign direct investors and then reinvested by them in the enterprises. In other words, two equal imputations are needed, one of which is the imputed remittance of the undistributed earnings while the second is the reinvestment of those earnings.

116. The rationale behind the imputations is that, since a direct investment enterprise is, by definition, subject to control, or influence, by a foreign direct investor, the decision to leave some of its earnings within the direct investment enterprise, instead of remitting them, must represent a conscious, or deliberate, investment decision on the part of the foreign direct investor. In practice, the great majority of direct investment enterprises are subsidiaries of foreign corporations or branches of foreign enterprises which are completely controlled by their parent corporations or enterprises, in which case the retention of earnings clearly represents a deliberate investment decision on the part of the parent. It should be noted that this argument cannot be extended to enterprises in general and is valid only in the case of enterprises, whether corporate, or unincorporated, which are under the control, or influence, of a single owner or investor, or small group of partners or investors working in collaboration with each other.

117. The retained earnings which are the subject of the imputation may be defined as:

> the net operating surplus of the direct investment enterprise
>
> plus any property incomes or current transfers received
>
> minus any property incomes or current transfers paid, including any taxes paid out of the income of the direct investment enterprise.

118. If the direct enterprise is wholly owned by a single foreign direct investor (as must be the case for a branch of a foreign enterprise) the whole of the retained earnings as just defined are deemed to be remitted to the foreign direct investor who is deemed to reinvest them in the enterprise. If a foreign direct investor owns only part of the equity of the direct investment enterprise, the amount which is deemed to be remitted to, and reinvested by, the foreign investor is proportional to the share of the equity owned.

119. The term "direct investment income" covers both the earnings which are actually remitted to the foreign direct investor in the form of payments of interest, dividends, royalties or other forms of property income, including withdrawals from the income of quasi-corporations (foreign branches), and the retained earnings which are deemed to be remitted and for which an imputed flow of property income is shown in the System and in Balance of Payments Statistics.

THE CONCEPT OF INCOME IN THE SYSTEM

120. The income flows which have been defined and elaborated in this chapter all refer to individual components of income. These can be combined to obtain various income totals and it is necessary to examine briefly how closely these totals correspond to concepts of income as developed in economic theory and used in economic analysis.

121. The concept of income has been developed primarily in order to help institutional units decide how much they can afford to spend within a given accounting period. It is needed because expenditure decisions have to be taken sequentially in the light of income information which itself only becomes available sequentially. The concept of income which seems to be most widely accepted in economics, and also in many fields of business accounting, is that proposed by

Prof. J. R. Hicks who suggested that income is the maximum value which a person can consume during a given period and still expect to be as well off at the end of the period as he was at the beginning. 1/ Hicks considered several variants of this basic idea and clearly recognized the difficulty of arriving at any definition which would be both operational and theoretically sound. His general conclusion was that the concept of income is only intended as "a guide for prudent conduct".

122. The concept of income is needed, therefore, in order to provide an institutional unit with a rational basis for allocating consumption expenditures between the current period and future periods in the face of uncertainty about future receipts and in the absence of perfect capital markets. Some kinds of receipts may be expected to recur regularly in the future, others may be expected to recur sporadically and some others not to recur at all. In order to deal with this array of uncertainties economists, accountants and businessmen have developed a simple decision rule whereby receipts are divided into two mutually exclusive categories, namely current receipts and capital receipts, whose impacts on consumption and hence on saving and capital formation, are believed to be quite different from each other. The dichotomy between current and capital is thus intended to serve not only as a guide to decision taking but also as an analytical tool designed to improve the prediction and explanation of economic behaviour.

123. Hicks' 1/ concept of income can itself be interpreted in different ways. In a system of accounts, it has to be applied ex post. The accounts for a period cannot be drawn up until the period is completed and information is available about all the transactions conducted within that period together with other relevant information, such as the price changes which have occurred within the period. The ex post measure of Hicksian income is the maximum amount which can be spent on consumption while ensuring that the real net worth of the institutional unit at the end of the period is equal to that at the beginning of the period. Real net worth is expressed in terms of constant purchasing power and is measured by deflating the change in nominal net worth by a general price index, such as that for gross national final expenditures. An ex post measure of income involves a retrospective comparison between net worth at the beginning and the end of the accounting period when all the transactions which take place within the period are known with complete certainty. It can be seen that the ex-post measure is also equal to the amount actually spent on consumption plus the actual change in real net worth between the beginning and end of the period.

124. The income total in the System which corresponds to a theoretical concept of income of the Hicksian type is clearly disposable income which therefore ought to provide the bridge between economic theory and accounting practice. Disposable income in the System is equal to consumption expenditures plus saving, however, whereas the Hicksian measure is equal to consumption expenditures plus the change in real net worth. They are not the same and the difference between them may be clarified by referring to the capital accounts and balance sheets of the System which contain a complete and exhaustive breakdown of the changes in the net worth of an institutional unit, or sector, between the beginnning and end of the accounting period. By referring to the balance sheets of the System it may be seen that:

1/ J. R. Hicks, Value and Capital (Oxford: Clarendon Press, 2nd edition, (1)172.

the change in *real* net worth for an institutional unit is equal to:

(1) that unit's saving;

+ (2) the value of the capital transfers received by the unit *less* the value of the capital transfers paid;

+ (3) other changes in the unit's holdings of capital assets due to the creation of new assets or the destruction of existing assets;

+ (4) *real* holding gains, less *real* holding losses, on all the assets owned by the unit as a result of changes in their prices relatively to the change in the general price level.

It is not necessary to explain the various items in detail at this point, and reference may be made to Chapter ... on balance sheets for further details. It is evident, however, that there is considerable scope for divergence between saving and changes in real net worth, and hence between disposable income as defined in the System and a Hicksian type concept of income, at least for an individual institutional unit.

125. The System deliberately excludes items (2) and (3) above from income on the grounds that institutional units are perfectly capable of recognizing significant changes in their holdings of capital assets when they occur and react differently to them from changes in the various components of income which make up disposable income in the System. In practice, institutional units have no difficulty in recognizing capital transfers in kind and the main difficulty concerns cash transfers. Capital transfers in cash may be recognized by the fact that they are usually linked to, or even conditional on, the acquisition, or disposal of a tangible capital asset by one or both parties to the transaction, which also suggests that they are both large and infrequent, at least from the point of view of one of the parties. Unless institutional units are capable of distinguishing transfers of capital when they occur, the very notion of income as a measure of the amount a prudent, rational unit can afford to spend on consumption begins to disintegrate. It is not true, however, to suggest that institutional units treat *mall* receipts, whatever their nature or origin, within a given accounting period as available to be consumed *in their entirety* within the *same* accounting period, provided merely that they maintain intact whatever level of real net worth they happen to possess at an arbitrarily selected moment of time, namely the start of the accounting period. It can make no difference to the behaviour of a unit whether a significant transfer of capital happens to occur just before, or just after, the start of the accounting period.

126. The rationale behind the concept of disposable income employed in the System is that institutional units will treat any capital assets which they acquire, or lose, within the accounting period as a result of capital transfers or for other reasons, in the same way as the capital assets which they hold at the beginning of the period. This implies that an institutional unit's propensity to consume in the current accounting period out of capital transfers, whether in cash or in kind, is quite different from its propensity to consume out of current transfers or other forms of income. As already suggested, unless this proposition is true as a matter of fact, it is impossible to draw distinctions between current and capital transfers or to have meaningful concepts of income and saving.

127. Thus, the Hicksian concept of income needs to be modified to take account of capital transfers or changes in capital assets due to the exogenous creation or destruction of capital assets within the accounting period. This implies that disposable income is defined as the maximum amount which can be spent on consumption within the period while maintaining intact the real net worth at the start of the period plus or minus any changes in real net worth due to capital transfers or the exogenous creation or destruction of capital assets within the accounting period.

128. The System also excludes real holding gains and losses from disposable income. Implicitly, it is assumed that institutional units react to them in much the same way as to transfers or capital between different institutional units. It is a much more open question, however, what is the most appropriate treatment of real holding gains, as this depends not only on theoretical, or a priori, considerations but also on the strictly empirical question of how most institutional units react to real holding gains and losses in practice. If the propensity to consume out of real holding gains or losses is very different from the propensity to consume out of the components of income identified in the System their inclusion in disposable income could greatly reduce the analytical usefulness of income as an explanatory variable. Real holding gains are excluded from income in the System not simply because of the practical difficulty of estimating them but also because a convincing case for their inclusion has not been made, either theoretically or empirically.

129. In this context, a number of points may be noted about real holding gains:

(1) Institutional units are often not even aware of the magnitude of the real holding gains or losses which accrue on their assets or liabilities;

(2) Even if they are aware of them, the holding gains may not be realized, or even easily realizable, without a major restructuring of the unit's portfolio of assets and liabilities;

(3) Real holding gains depend upon changes in relative prices, many of which may be unpredictable, irregular and reversible, at least over long periods of time. It is quite likely, therefore, that many institutional units react to them in much the same way as they do to capital transfers.

130. Thus, there are good grounds for believing that the propensity to consume out of real holding gains, or losses, may be significantly different from that out of disposable income as defined in the System so that including them in disposable income would not appear to be justified.

131. The exclusion of real holding gains and losses from income in no way implies that they are regarded as unimportant and relegated to a minor role in the System. On the contrary, the inclusion of real holding gains and losses within the central accounts and main framework of the System is one of the major extensions of the System. However, including them in the income and outlay accounts of the System is not considered to be the most appropriate way to introduce them into the system of accounts as a whole.

132. When there are persistent and high rates of inflation, holders of assets denominated in fixed money terms, including money itself, incur systematic and substantial real holding losses on those assets, while units with monetary

liabilities experience corresponding real holding gains. It is therefore recommended that in an inflationary situation, the real holding gains and losses on monetary assets and liabilities should always be calculated, even if it is not possible to calculate real holding gains and losses on all kinds of assets. Because these gains and losses become so large, and their continued occurrence so predictable, in a situation of high inflation, it is likely that they have a significant effect on the behaviour of the units concerned and for this reason it is recommended that the real gains or losses on monetary assets or liabilities should always be shown as memorandum items below the income and outlay accounts when the rate of inflation exceeds more than a few per cent per year.

CHAPTER X: THE CAPITAL AND FINANCIAL ACCOUNTS*

A Introduction

1. The Capital and Financial Accounts of the System can be considered in two different contexts. First, they form part of the Accumulation Accounts which link the opening and closing balance sheets. Second, the Capital and Financial Accounts complete the sequence of accounts in the System which are concerned with transactions between institutional units. These two approaches are considered in the following sections.

A.1 The Capital and Financial Accounts as Accumulation Accounts

2. The System as a whole includes the opening and closing balance sheets listing the assets and liabilities held by institutional units or sectors. Balance sheets record the values of the stocks of assets held or liabilities outstanding at a particular moment of time. The difference between the values of the total assets and total liabilities of a unit or sector at a given point of time is its net worth. The System provides a complete accounting for the changes in the values of individual balance sheet items between the beginning and end of the accounting period, thereby providing a complete explanation for changes in net worth over time.

3. Changes in balance sheet items can be decomposed into three elements:

(1) Changes in assets or liabilities which result from actual or imputed transactions between institutional units;

(2) Other changes in the amounts of assets or liabilities in existence, such as the destruction of fixed assets as a result of natural disaster or war; and

(3) Changes in the prices of assets or liabilities. The third item is necessary because the assets and liabilities recorded in the balance sheets are valued at the prices prevailing at the time the balance sheets are compiled, as distinct from the prices at which they were originally acquired.

4. The Capital Account and Financial Account cover the first of the elements listed above, that is, changes in assets or liabilities which result from transactions. Two separate accounts are compiled in order to distinguish between two quite different sets of assets, namely, fixed or other non-financial assets, and financial assets and liabilities. The distinction is drawn not merely because the assets are intrinsically quite different from each other but because transactions in the two kinds of assets serve different economic purposes, as explained in the following section. Two separate accounts are needed to meet the requirements of economic analysis and policy-making.

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not yet reviewed.

B. The Capital and Financial Accounts as the completion of the sequence of transactions accounts

5. The Capital Account records the net accumulation of fixed assets and other non-financial assets resulting from transactions in those assets. Under "uses" on the left side of the account, four elements are shown:

Gross fixed capital formation

Change in stocks

Consumption of fixed capital (negative)

Net purchases of land and other non-financial assets

Each of these components is described in detail in subsequent paragraphs or in other chapters. Other non-financial assets are a heterogeneous group of assets including so-called "intangible assets".

6. The resources out of which the net accumulation of fixed and other non-financial assets may be financed are of two kinds:

Net saving

Capital transfers receivable less capital transfers payable

Net saving is the balancing item carried forward from the use of income account. It measures the positive or negative amount by which the value of resources generated exceeds the use of those resources in respect of all the current activities of the units or sectors concerned. Net saving (increased by the resources obtained from capital transfers and reduced by the resources disposed of through capital transfers to other units), measures the value of the resources which can be used for the purpose of accumulating fixed or other non-financial assets. If they are not all used in this way, the surplus must have been used to acquire financial assets of one kind or another or to pay off liabilities. Alternatively, if the resources available from net saving and capital transfers are not sufficient to cover the value of the net accumulation of fixed or other non-financial assets, the deficit must have been financed by disposing of financial assets or incurring liabilities. The surplus or deficit just described is the balancing item in the Capital Account; it is referred to as net lending or net borrowing, depending on whether there is a surplus of resources over uses, or vice versa. It is shown on the left side of the Capital Account under uses.

7. Some subsectors or sectors are net lenders, while others are net borrowers. The surplus resources of one sector can be made available for the use of other sectors by the institutional units concerned engaging in financial transactions with each other. The mechanism by which this is achieved is described in the section on Financial Accounts. In the hypothetical case of a closed economy in which resident institutional units do not engage in transactions with non-residents, the total net lending and total net borrowing of the various sectors would have to be equal. For the economy as a whole, net lending or borrowing would have to be zero. In practice, when residents engage in transactions with non-residents, the algebraic sum of the net lending and net borrowing of each of

the four major domestic sectors which made up the national economy must equal the economy's net lending to, or borrowing from, the Rest of the World.

8. The Financial Account records on the left side the values of the financial assets acquired or disposed of by an institutional unit or sector, and on the right side the values of the liabilities incurred or paid off by the unit or sector. The entries may therefore be positive or negative for either assets or liabilities.

9. Seven main categories of financial instrument are distinguished in the Financial Accounts, as follows:

Gold and SDRs

Currency and deposits

Securities other than shares

Loans

Shares and other equity

Insurance technical reserves

Other accounts receivable or payable

These are listed on both sides of the Financial Account, depending upon whether they are assets or liabilities of the unit or sector in question.

10. Financial transactions consist of the exchange of existing financial assets or liabilities, or the creation or extinction of financial assets or liabilities, and they are recorded entirely within the Financial Accounts of the System. However, by no means all entries in the Financial Accounts refer to financial transactions. On the contrary, every monetary transaction involving the transfer of ownership of a good or non-financial asset, or the provision of a service or labour entails a counterpart entry in the Financial Account. For this reason, the net change in the financial assets and liabilities held by a unit or sector is entirely determined by the net balance of its monetary transactions excluding its financial transactions. Financial transactions involve the exchange of one asset for another, or the simultaneous creation of both assets and liabilities. They change the distribution of the portfolio of financial assets and liabilities and may change the totals of both assets and liabilities but they do not change the differences between total financial assets and liabilities. Net lending or borrowing requirements are determined as the net outcome of all the monetary transactions recorded on the production, income and capital accounts. Because of the way in which the sequence of accounts in the System is ordered, this net outcome emerges as the balancing item on the Capital Account, which has already been identified as the unit or sector's net lending or borrowing requirement.

11. Conceptually there is a distinct break in the sequence of accounts for the System as a whole between the Capital Account and the Financial Account. The production, income and capital accounts relate to the economic activities of production, consumption and capital accommodation. Institutional units are obliged to engage in monetary transactions in their pursuit of these activities. However, as just noted, the net outcome of all these transactions usually leaves the units

with a surplus or deficit which must be accommodated by acquiring or disposing of financial assets or paying off or incurring liabilities. The Financial Account shows how this accommodation is realized. It is therefore complementary to the other transactions accounts as a whole, and makes it possible to close the entire set of transactions accounts in the System.

C. The Capital Account

12. The Capital Account for an institutional unit or sector records the net accumulation of fixed assets and other non-financial assets resulting from transactions in those assets. The main features of the account have been described above in the introduction, and the purpose of this section is to describe the main elements in the account in more detail, including the distinction between capital and current transfers.

C.1 Resources

C.1.1 Net saving

13. This is the balancing item carried forward from the use of income account. It represents the amount by which disposable income final consumption expenditures (if any) and which is therefore available for the acquisition of capital assets of one kind or another - tangible, intangible or financial - or has to be financed by disposing of such assets. In the case of corporations and quasi-corporations, net saving is equal to the retained earnings which become available for investment by the management of the enterprise after meeting all current obligations, including payments of dividends and withdrawals of property income by the owners of quasi-corporations. Direct investments which are wholly owned by non-resident enterprises have no saving, as all their retained earnings are deemed to be remitted back to their owners, who are then deemed to reinvest them in the enterprise. Direct investment enterprises which are only partly owned by non-residents may have saving in proportion to their ownership by residents.

C.1.2 Consumption of fixed capital

14. Consumption of fixed capital is defined as the decline between the beginning and end of the accounting period in the value of the stock of durable producer goods existing at the beginning of the period, plus those added to the stock through gross fixed capital formation during the period as a result of physical deterioration, obsolescence or normal accidental damage. Capital consumption is measured at current prices, that is, the price vector by which the decline in value is measured consists of the actual or estimated average purchaser's prices of the goods in question during the accounting period. When calculating the net operating surplus (or mixed income), it is assumed that an amount equal in value to capital consumption as just defined is deducted from the gross operating surplus (or mixed income). The amount deducted represents resources which can be used for purposes of gross fixed capital formation.

15. Consumption of fixed capital as defined in the System may differ from the amounts which businesses put aside in the form of depreciation provisions, especially when the latter are calculated with reference to the original purchasers' prices paid for the capital goods (historic costs), instead of at current prices. However, as just explained, the net operating surplus is calculated after deducting capital consumption at current prices and not depreciation at historic costs.

Thus, capital consumption is the relevant figure to show in the Capital Account when considering the funds or resources available to an institutional unit for the replacement of fixed capital assets or purchase of different assets.

C.1.3 Capital transfers receivable and payable

16. Capital transfers may be in cash or in kind. It is convenient to consider transfers in kind first.

(a) A capital transfer in kind occurs when the ownership of a tangible or intangible capital asset or a financial asset (except money) is transferred from one institutional unit to another without any conuterpart being received in exchange.

(b) An unrequited transfer of cash is treated as a transfer of capital when it serves a similar purpose to a transfer of capital in kind. This implies that the recipient may be expected or required to use it to acquire a tangible, intangible or financial asset, and/or the unit making the transfer finances the transfer by disposing of a tangible, intangible or financial asset. A transfer is classified as capital even if only one of the parties to the transaction regards it as capital, although in most cases both parties are likely to perceive it in the same way. When the receipt of cash is treated as a capital transfer, the recipient must perceive it as adding to net worth, rather than income; that is, it should not be seen as being available for immediate consumption within the current period. Conversely, when the unit making the payment treats it as a capital transfer, it must have been made by liquidating some other kind of capital asset or incurring some new liability.

17. Some of the most important types of capital transfers involve Governments or non-residents units and they include the following:

(a) Investment grants made by government units which the receiving unit is required to use to finance the acquisition of capital goods. Such grants may be made to non-resident units, including foreign governments, for the purpose of capital formation;

(b) Capital transfers in kind, whereby governments transfer the ownership of tangible capital assets directly to resident or non-resident institutional units;

(c) The cancellation of debts by mutual agreement between creditors and debtors.

18. Capital transfers in kind should be recorded at the time the change in ownership of the capital assets takes place. They should be valued at the actual or estimated basic prices prevailing at the time the transfer is recorded. Capital transfers in cash should be recorded when the capital transfer becomes due for payment. The term "net capital transfers" is used to describe capital transfers receivable minus capital transfers payable.

C.1.4 Changes in net worth due to saving and net capital transfers

19. The change in the total net worth of an institutional unit or sector between the beginning and end of the accounting period may be decomposed into two elements. The first part, namely, saving plus net capital transfers, represents

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that part of the change in net worth which results from actual or imputed transactions of various kinds which an institutional unit enters into of its own accord. The second part consists of changes in the unit's ownership of assets due to exogenous factors over which the unit has little or no control, such as the accidental discovery or destruction of tangible assets, and also changes in the general price level and in the prices of specific assets. For analytical and policy reasons, it is useful to distinguish the first kind of change from the second, and therefore changes in net worth due to saving and net capital transfers are specifically identified as a separate item in the accounts of the System.

C.2 Uses

C.2.1 Gross fixed capital formation

20. Gross fixed capital formation is measured by the value of the new or used capital goods acquired by purchase, by capital transfer in kind or from own production during the accounting period, less sales or transfers of used capital goods. It includes major renovations, reconstructions or extensions to existing capital goods which significantly change their characteristics, size, capacity or performance or extend their normal service life. It also includes the value of construction undertaken for the purpose of reclaiming or improving land or making possible the subsequent extraction of known reserves of subsoil assets. The value of gross fixed capital formation includes transfer costs, in the form of agents' or lawyers' fees, etc., which may be incurred when the ownership of existing capital goods, land or natural assets is transferred from one institutional unit to another.

C.2.2 Changes in stocks

21. The value of the changes in the stocks of inputs and outputs held by producers is given by the sum of all entries into stocks valued at the prices prevailing at the time the goods are entered less the sum of all withdrawals from stocks valued at the prices prevailing at the time the goods are withdrawn. If changes in stocks take place at a steady rate throughout the accounting period, the value of the changes in stocks may be satisfactorily approximated by the difference between the quantities of stocks held at the beginning and end of the accounting period multiplied by their average prices during the period. If stock levels fluctuate, however, because of seasonal or other factors, the method just described does not provide a satisfactory approximation, and it is necessary to keep records of all individual stock changes as they occur throughout the accounting period as a whole and value them accordingly. Changes in stocks are defined in the System in such a way as to obtain theoretically appropriate measures of intermediation consumption and output, and hence, gross value added, operating surplus and saving.

C.2.3 Purchases of land and other non-produced assets

22. Purchases of land and other non-produced assets are included in the Capital Account of the System, although expenditures on such assets do not constitute gross fixed capital formation.

C.2.3.1 Land

23. Land is defined in the System as the ground itself, excluding any buildings or other man-made structures situated thereon but including any natural subsoil assets situated below the surface of the ground. Land also includes any uncultivated

forests growing on it, as these are treated as an integral part of the land itself. Land is also considered to include any inland waters over which property rights can be exercised and which may be bought and sold.

24. The stock of land is largely fixed, although it may be reduced marginally by erosion of the sea, and it is also possible to reclaim land from the sea. The quality of land, and hence its value, may, however, be increased or diminished substantially as a result of various kinds of economic activities. The quality of land may be improved by building dykes, dams, irrigation channels, roads, etc., or by either clearing forests or planting new forests. On the other hand, the quality of land may also be degraded by inappropriate farming methods, pollution or other factors.

25. In principle, sales and purchases of land should refer only to the land itself, excluding any buildings or other structures situated thereon. When a building or other structure is purchased together with the land on which it is situated in a single transaction and it is impossible to separate the value of the structure from the value of the land, the purchase should normally be treated as the purchase of an existing capital good, that is, as gross fixed capital formation on the part of the purchaser. If, however, the value of the land is known to be much greater than that of the structure, the purchase should be treated as the purchase of land. This may be the case when the structure occupies only a very small part of the land which is purchased or when the structure is intended for demolition. The costs of demolishing a structure and clearing the land for new construction after it has been purchased are not to be included in the price of the land. Such costs (less the value of any demolition materials sold) are to be treated in the same way as other improvements to land, namely, as gross fixed capital formation.

26. Every institutional unit which owns land within the economic territory of a country is deemed to have a centre of economic interest in that country. If, therefore, the owner's principal centre of economic interest lies abroad, so that the owner is considered to be non-resident for all other purposes, it is necessary to create a notional resident institutional unit for the owner purely in his or her capacity as an owner of land. It follows that purchases and sales of land can only take place between resident units - either real or notional resident units. The non-resident owner of a resident notional institutional unit is deemed to own the equity of the latter, which is taken to be equal to the value of the price paid for the land. Any rent received by the notional resident unit which is remitted to its non-resident owner has therefore to be treated as if it were the remittance of a dividend (and not rent).

27. The transfer costs involved in the purchase and sale of land are not to be included in the price of the land The fees received by agents, lawyers, brokers, etc., measure the value of the output which they produce, this output being treated as a form of gross fixed capital formation. This gross fixed capital formation may be undertaken by either the buyer or the seller of the land, or both, depending on the amount of the fees, commissions or other charges which each of them actually incurs. Thus, the price at which the purchase or sale of land is recorded is always the same for both the buyer and the seller.

28. The item "net purchases of land" in the Capital Account refers to the value of all purchases less all sales of land for an institutional unit or group of units which make up a sector or subsector. As all owners of land are residents, it

follows that net purchases and sales of land must cancel each other out for the economy as a whole.

C.2.3.2 Other non-produced assets

29. Other non-produced assets include so-called "intangible assets", which entitle their owners to engage in certain specific activities or to produce certain specific goods or services and to exclude other institutional units from doing so except with the permission of the owner. Most intangible assets are capable of generating property income for their owners when they grant such permission to other institutional units in return for the payment of royalties. Alternatively, the owners of the rights may be able to earn monopoly profits by restricting the exercise of the rights to themselves. Intangible assets are not financial assets because their owners do not have any financial claims over another institutional unit.

30. There are four main types of intangible assets:

(1) The right to exploit subsoil assets or mineral deposits, including those in international waters; the right to engage in other kinds of activities, such as public transportation, or fishing or hunting in certain locations, etc.;

(2) The right to use certain specific production processes or industrial designs or models or to produce certain designated kinds of goods or services; these rights are usually embodied in patents, trade marks, brand names, franchises or similar instruments which may be created by process of law or at least recognized by law;

(3) The right to produce and sell copies of a unique good, such as a book, musical work, painting, play, drama, musical performance, sporting event, computer programme, etc., whether the original is recorded on paper, film, magnetic tape, disk, diskette or other material;

(4) The option to buy or sell financial assets or goods on terms agreed in advance with another institutional unit; such options are usually only open for a limited period of time, also agreed in advance.

31. The first group of assets come into existence either as a result of a government fiat or decree, or because some institutional units already own the land whose subsoil assets, mineral deposits, rivers or other features other institutional units wish to exploit without purchasing the land outright. The second group come into existence as a result of the discovery or development of new types of products or new methods of production which are protected by patents or similar instruments for a number of years. The third group come into existence as a result of the creation of a unique product - a new book, film, musical performance, computer programme, etc. - over which the author, composer, writer, producer, etc., can claim copyright. The fourth group, namely, options to buy or sell, come into existence as a result of a formal contract between two institutional units; most options may be sold to third parties and thus have a market value even though they may not generate property income.

32. The purchase or sale of an intangible asset recorded in the Capital Account of the System is a transaction in which the legal ownership of the asset in question is transferred from one institutional unit to another. Such a transfer must be

clearly distinguished from a transaction in which the owner receives a payment in exchange for permitting another institutional unit to enjoy whatever advantage ownership of the asset confers. For example, an institutional unit may own a patent over a particular process of production. When the owner of the patent permits other units to utilize that process under licence, the payments received in exchange by owners are royalties - i.e., receipts of property income. However, the owner may choose to sell the patent outright to another institutional unit which then becomes entitled to receive royalties. The outright purchase or sale of the patent is recorded in the Capital Account under net purchases of intangible assets.

33. Similarly, the owner of a copyright on a book may permit several different publishers, possibly in different countries, to print copies of the book for sale in exchange for the payment of royalties. On the other hand, the original owner of a copyright (i.e., the author, composer, programme writer, etc.) may sell the copyright itself to another institutional unit, such as a publisher, the original owner of the copyright then having no further claim to royalties. The outright sale of the copyright itself is recorded in the Capital Account.

34. Intangible assets are not always marketable. In some countries the rights of authors, composers, inventors, etc., may be inalienable at law, so that the original owner of a copyright or patent may not be in a position to sell it. Moreover, in most countries, copyrights, patents, etc., may be granted for only limited periods of time, which seldom extend beyond the lifetime of the original author, composer or inventor.

35. As in the case of transactions in land, the values of the purchases or sales of intangible assets should be recorded excluding any fees, commissions or other charges which may be payable to third parties, such as agents, lawyers, etc. Payments of such fees constitute payments for the services rendered by the agents, lawyers, etc., and these are treated as transfer costs and included under gross fixed capital formation. The allocation of such fees or charges between buyers and sellers of intangible assets is determined by the amounts actually paid by buyers and sellers respectively. It follows that purchases and sales of intangible assets are recorded at the same price for both buyers and sellers. "Net purchases of intangible assets" is to be understood as the value of purchases less sales for any individual institutional unit or group of units which make up a sector or subsector.

C.2.4 Net lending

36. Net lending is the balancing item of the Capital Account. It represents the sum of net saving, capital consumption and net capital transfers received less the sum of gross capital formation and net purchases of land and other non-produced assets. The balance shows the net amount, which may be positive or negative, which an institutional unit or sector is able to lend to or has to borrow from other units or sectors and it must be mirrored by a corresponding change in its total financial assets or liabilities.

D. The nature of financial assets and liabilities

D.1 Financial claims and obligations

37. Financial claims and obligations arise out of contractual relationships between pairs of institutional units, one of which is a creditor and the other a debtor. A financial claim entitles a creditor to receive a specified payment or

payments from a debtor in circumstances specified in the contract between them. The redemption value of a claim is the amount of money which the debtor is obliged to pay to the creditor in order to extinguish the claim. In practice, claims may be extinguished or settled by transferring the ownership of other assets of equal monetary value.

38. Most financial claims come into existence when a creditor provides funds or other resources of a specified monetary value to a debtor without receiving any resources in exchange, other than the newly credited claim itself.

39. The claim is created when the debtor accepts the obligation to make a payment or payments to the creditor in the future. The amount which the debtor has to pay to extinguish the liability is also fixed when the claim is created, together with circumstances under which the debtor may be required to do so. Claims may also be created by force of law, in particular, obligations to pay taxes or other compulsory payments. The criteria which determine the amounts of interest to be paid have also to be specified in the contract. Payments of interest do not reduce the amount which the debtor is obliged to pay to extinguish the claim and are treated as current transfers.

40. Financial claims may take a variety of different forms which are manifested in a variety of different financial instruments. Different types of financial instruments are devised in order to meet the differing requirements and also differing financial circumstances of both creditors and debtors. Financial instruments consist of loans, deposits, bills, bonds, credits, etc. They are described in some detail in a later section of this chapter.

D.2 Financial assets and liabilities

41. In general, assets are entities owned by institutional units from which benefits may be expected to be derived in the future. Financial claims are evidently assets, but not all financial assets consist of claims over other institutional units. Financial assets also include gold, SDRs and shares in corporations which their holders treat in much the same way as financial claims. There are no liabilities outstanding in respect of gold and SDRs, while the liability with respect to a share does not represent a fixed redemption value, but rather a claim on the net worth of the corporation. On the other hand, while a distinction must be drawn between financial claims and financial assets, for reasons just given, financial obligations are identical with financial liabilities: they are synonyms for each other.

42. The Financial Account records the values of the financial assets acquired or disposed of and the liabilities incurred or redeemed in transactions between institutional units. However, every monetary transaction which takes place in the economy, whatever the nature of the good, asset, service or labour provided for which payment is demanded, leads to a change in the financial assets or liabilities of the units concerned. It is therefore necessary to clarify what are the characteristics which distinguish financial transactions from the more general category of monetary transactions.

D.3 Monetary transactions and financial transactions

D.3.1 Monetary transactions

As explained in chapter ..., a component of a transaction is defined as an action undertaken by prior agreement between two institutional units in which:

the ownership of a good or asset, including an existing financial asset, is transferred from one unit to another;

or, a new financial claim is created or existing claim extinguished;

or, one unit provides a service to the other;

or, one unit works for the other.

A transaction is then defined as:

> either a pair of component actions undertaken reciprocally at the same time between the same pair of institutional units;
>
> or a single component action without a counterpart.

43. Next, a monetary transaction is defined as a transaction in which one of the components consists of:

> the payment of money by one party to the other;
>
> or, the creation or extinction of a financial claim by one party over the other (e.g., a receivable);
>
> or, the transfer of ownership of some other financial asset as a substitute for money.

44. The value recorded for a monetary transaction is the amount of money receivable or payable at the time the transaction takes place. Although many monetary transactions involve actual payments of money, there is no necessity for such payments to take place at the time the transactions occur. New claims in the form of receivables and payables may be created, while changes in other financial assets may be substituted for changes in currency or transferable deposits.

45. Finally, a financial transaction is defined as a transaction with two components, both of which are financial, that is, each component consists of the transfer of ownership of an existing financial asset or the creation or extinction of a financial asset or liability.

46. Financial transactions thus constitute the sub-set of monetary transactions in which both components are financial. A simple example of a financial transaction is the sale of an existing bond for cash, that is, the transfer of a bond in exchange for the transfer of currency or transferable deposits. Another example is the creation of a new loan, in this case, the creditor records a decrease in one asset, namely, currency or deposits, and an increase in another asset, loans, while the debtor records an increase in currency or deposits and an increase in liabilities.

47. Financial transactions require two entries in the Financial Account of each party to the transaction. It should be noted that a transaction with only a single component - for example, the gift of money or the transfer of some other financial asset - is not a financial transaction: such a transaction entails another entry elsewhere in the accounts, in the form of a current or capital transfer.

D.3.1.1 The distinction between financial and other monetary transactions

48. The distinction between financial transactions and other monetary transactions reflects a fundamental difference in the motives of the institutional units undertaking such transactions. In the case of an ordinary monetary transaction which is not a financial transaction, the financial component represents the means by which the transfer of ownership of goods or non-financial assets or the provision of a service or labour is paid for or financed. Such transactions are undertaken for the purpose of achieving the non-financial component, the financial component being essentially an accommodating device which enables the transaction to take place. In relatively simple or minor transactions currency may actually change hands at the time the transactions take place. But it is impossible to restrict the definition of monetary transactions to such cases. Even when settlement is ultimately made in currency or transferable deposits, payment may not be simultaneous with the transaction so that other financial assets and liabilities, in the form of receivables and payables or more formal instruments, such as bills, are created when the transaction takes place. The types of deposits which may be transferred to make the ultimate settlement are continually being extended, while the settlement may possibly be made by the transfer of other financial assets, so that the concept of money itself, while still generally understood and used, has become increasingly difficult to define in precise or operational terms. As there is no measure of money which is acceptable or useful for all countries and all time periods, money itself is not actually defined within the System. For all these reasons, the concept of a monetary transaction must be defined widely and cannot be confined to the special case in which payments of money, however defined, take place at the time the transactions occur.

49. Financial transactions differ from other monetary transactions just described not merely in their contents - the fact that both components are financial - but also because they are undertaken for quite different reasons. Financial transactions are undertaken with the objective of changing the distribution of the portfolio of financial assets and liabilities held by an institutional unit. They also serve to increase or decrease the total amounts of financial assets and liabilities outstanding when new financial claims are created or existing financial claims extinguished. The changes in financial assets and liabilities that occur are not simply accommodating payments, but are sought as ends in themselves. As both components to a financial transaction are financial, all entries in the accounts relating to financial transactions are confined to the Financial Accounts. On the other hand, in the case of other monetary transactions, the first entry is recorded in one of the non-financial accounts - production, income or capital - and only the second or counterpart entry in the Financial Account of each of the two parties concerned.

D.3.2 The recording of monetary and financial transactions

50. In balance sheets it is customary to record assets on the left and liabilities on the right. This method of recording is followed in the Financial Accounts. The entries in the Financial Accounts consist of the values of the financial assets

acquired or disposed of, or liabilities incurred or redeemed in monetary transactions, including financial transactions, between institutional units in the period of account. The value of a particular kind of financial asset acquired or disposed of by an institutional unit or sector is recorded as a positive/negative figure on the left-hand side of the account. Similarly, the value of a particular kind of liability incurred or redeemed by an institutional unit is recorded as a positive/negative figure on the right-hand side of the account. The difference between the algebraic sum of the positive or negative changes in financial assets and the algebraic sum of the positive or negative changes in liabilities - i.e., the balancing item of the account - consists of the unit's or sector's net lending (positive balance) or net borrowing (negative balance) and is shown on the right-hand side of the account under liabilities.

51. Over the duration of the accounting period as single institutional unit may engage in a very large number of monetary transactions, including financial transactions, leading to a succession of increases and decreases in the amounts of a given type of financial asset held, such as a transferable deposit. The Financial Account for that institutional unit records only a single figure, of course namely, the cumulative value of all the positive and negative changes for the asset in question over the accounting period as a whole.

52. When institutional units are grouped to form subsectors or sectors changes in the financial assets which constitute claims over the institutional units within the same subsector or sector are not cancelled against the changes in the corresponding liabilities. It would be possible to use an alternative presentation in which only changes in claims over or obligations to institutional units in other subsectors or sectors, were recorded but this would entail some loss of information. Such an alternative presentation may be useful for some purposes, however: for example, for the national economy as a whole, by showing only changes in claims of residents over non-residents and vice versa.

53. The times at which monetary transactions, including financial transactions, are recorded follow the general rules in the System. Depending upon the nature of the transaction, they are recorded when the ownership of the good or asset in question is transferred, the service or labour is provided, or the financial asset created or liability extinguished. Entries in different accounts which relate to the same transaction are all recorded at the same time.

D.4 Imputations for non-monetary transactions, reroutings and reclassification

54. When values are imputed for the goods exchanged, or services provided in non-monetary transactions - i.e., barter transactions, remuneration in kind or transfers in kind - there are no entries to be recorded in the Financial Accounts. Similarly, the values imputed for the own-account production of goods and services involved in intra-unit transactions cannot lead to entries in the Financial Accounts. These imputed values can effectively be ignored when considering the relationships between the Financial Account and the other accounts of the System.

55. On the other hand, the rerouting, reclassification or partitioning of actual monetary transactions may have an impact on the Financial Accounts of the institutional units and sectors concerned. For example, the System's treatment of financial leasing has major consequences for the Financial Accounts as well as the other accounts of both the lessor or lessee.

D.5 The relationships between the Financial Account and the Non-Financial Accounts of the System

56. As just noted, entries in the accounts which denote values which have been imputed for goods or services can be ignored when considering the relationships between the Financial Account and the other accounts of the System. Indeed, it is precisely because no receivables or payable are generated that it is necessary to impute values for goods and services involved in non-monetary, or intra-unit, transactions.

57. In the case of a monetary transaction which is not a financial transaction, one component to the transaction must consist of the transfer of ownership of a good or a non-financial asset or the provision of a service on labour, while the other component (or counterpart) must be the transfer of ownership of a financial asset or the creation or extinction of a financial asset or liability. It follows that for each party to a monetary transaction, whatever value is recorded as a resource in one of the non-financial accounts must be matched by an increase in an asset or reduction in a liability of equal value in the Financial Account. Similarly, uses in the non-financial accounts must be matched by reductions in liabilities or increases in assets. Thus, each entry in the non-financial accounts entails an entry of equal value in the Financial Account. This equality must hold not only for individual transactions between pairs of institutional units but also for sets of transactions of the same kind conducted during an accounting period by groups of institutional units, i.e., sectors. Moreover, if the equality holds for all the individual entries in the accounts for sectors, it must also hold for the balancing items in the non-financial accounts. If the net outcome of all the current activities of a unit or sector plus its net accumulation of non-financial assets is positive (negative), it follows that it must have acquired (disposed of) financial assets or redeemed (incurred) liabilities of equal value. This overall surplus or deficit constitutes its actual net lending or borrowing requirement. It appears as the balancing item on the Capital Account because this account is the last in the sequence of accounts in the System relating to non-financial activities.

58. Although net lending or borrowing, the balancing item on the Capital Account, is, in principle, identical with the balancing item on the Financial Account, there is liable to be a substantial statistical discrepancy between them in practice. The non-financial accounts of the System draw upon quite different data sources from the Financial Account and it is to be expected that each of their balancing items will be subject to significant but different errors of estimation. Experience from several countries suggests that it may be very difficult to reconcile the two balancing items but the process of reconciliation, even if not entirely successful, will tend to improve the quality and reliability of the system of accounts as a whole.

D.6 The net financial position

59. The net financial position of an institutional unit or sector is defined as the value of its total financial assets less the value of its total liabilities at a given moment of time. It is a stock concept and is one component of the net worth of a unit or sector. Although the net financial position is not shown explicitly in the System, it may be used to illustrate the different ways in which financial transactions and other monetary transactions impact on the Financial Accounts.

(1) A financial transaction in itself cannot change the net financial position of an institutional unit or sector. The value of the change in one asset or liability must be matched by an equal but opposite change in value for some other financial asset or liability. Thus, net lending or borrowing, i.e., the change in the net financial position, does not change as a result of a financial transaction.

(2) When an existing financial asset is exchanged for another existing financial asset - for example, the purchase of an existing bond for cash - the values of the total assets and liabilities remain unchanged, as well as the net financial position.

(3) The values of the total assets and liabilities held by a unit or sector are increased or decreased by the creation or extinction of assets or liabilities - for example, when a new loan is taken out, or a new bond issued, or when an existing loan is paid off or a bond matures. The values of the assets and liabilities are increased or decreased by equal amounts, however, leaving the net financial position unchanged.

(4) The net financial position can therefore be changed only by a transaction which changes one of the items in the Financial Account while leaving all the other items unchanged - that is, by a monetary transaction which is not a financial transaction.

60. The four propositions above demonstrate that changes in the net financial position - i.e., net lending or borrowing - are determined by the aggregate value of the monetary transactions which are not financial transactions. In other words, the net lending or borrowing requirements of an institutional unit or sector is determined by the net outcome of all the monetary transactions which appear in the production, income and capital accounts of the System.

D.7 Elementary flows of funds and the Financial Accounts

61. Consider the example of an institutional unit whose income and outlays result in positive saving which initially takes the form of an accumulation of currency or transferrable deposits. At the same time, a second institutional unit wishes to borrow funds for purposes of gross fixed capital formation and issues new bonds which the first unit purchases out of its accumulated currency or deposits. The consequences for the Financial Account of this simple flow of funds from saver to investor may be summarized as follows:

(1) The total financial assets and liabilities of the first unit remain unchanged and also, of course, its net financial position; however, the distribution of its portfolio of financial assets changes as cash is exchanged for bonds;

(2) The total financial assets and total liabilities of the second unit both increase by the value of the bonds issued, the net financial position remaining unchanged.

62. The net financial position does not change as a result of the act of borrowing in itself. It is the subsequent expenditure of the borrowed funds on capital goods, i.e., non-financial assets, that causes total financial assets to decrease relatively to liabilities - i.e., the net financial position to change. Such

expenditures are not themselves financial transactions. In effect, financial transactions make it possible to obtain the extra funds which are needed for non-financial purposes.

63. The above simple example illustrates the way in which funds may be routed from one unit or sector to another. Economic activities, such as production, consumption and capital formation lead to situations in which some units or sectors accumulate funds in excess of their requirements while others have insufficient funds for their purposes, such as carrying out investment projects. Funds are channelled from one group to the other by their engaging in financial transactions with each other as a result of which their portofolios of assets and liabilities are redistributed, increased or decreased in order to bring them into line with their preferences or needs. Such activities can only be observed and analysed by compiling Financial Accounts.

D.8 Financial intermediation

64. In practice, institutional units with excess funds may not engage in financial transactions directly with other units with demands for funds. The requirements of individual lenders may not match those of individual borrowers, both lenders and borrowers may lack information about each other's requirements and, in general, the transaction costs of trying to arrange individual contracts may be prohibitively high. Financial intermediaries, such as banks or other deposit taking institutions, have evolved not only to facilitate means of payment, but to facilitate the much wider process by which funds flow from one part of the economic system to another. Financial intermediaries engage in two distinct sets of financial transactions, with two different sets of institutional units. On the one hand, they receive funds by accepting deposits or incurring other liabilities by engaging in financial transactions with institutional units, such as households, which may have funds to lend or invest. On the other hand, they supply funds by engaging in another set of financial transactions whereby they make loans to other institutional units or purchase bills, bonds or other securities. Financial intermediaries seek to ensure that the assets they acquire have higher rates of return than the liabilities they incur. Moreover, the pattern of their assets is different from the pattern of their liabilities. In this way they effectively transform or convert the flows of funds they receive into flows of different kinds more suited to the requirements of borrowers. As financial specialists, financial intermediaries should be much better placed than ordinary institutional units to evaluate the credit-worthiness of borrowers or the returns on investment projects, and they are also able to exercise surveillance over the ways in which borrowers use funds. These two functions of financial intermediaries are sometimes described as their screening and monitoring roles.

65. Because of the unique and important role which financial intermediaries play, they constitute a separate sector in the System, together with the financial auxiliaries which facilitate the process of financial intermediation. The existence of financial intermediaries also means that there are many indirect or roundabout routes by which funds can flow from the original lenders to their ultimate borrowers. The network of channels through which the funds may flow can become very complex.

D.9 Financial accounts and flows of funds

D.9.1 The Financial Accounts

66. The Financial Accounts of the System, as shown in tables ..., list the values of financial assets acquired or disposed of in transactions on the left-hand side, and the values of liabilities incurred or redeemed on the right-hand side. For simplicity, the accounts for individual sectors list only those assets or liabilities which the relevant institutional units can hold or incur. For example, households cannot issue shares or bonds, so that only two forms of liabilities need to be listed for households, namely, loans or accounts payable.

67. The value recorded for each item in the Financial Account for a given sector is the cumulative total of two different types of entries:

(1) Counterpart entries in respect of monetary transactions other than financial transactions;

(2) Entries in respect of financial transactions.

68. Most of the entries under the first heading, which consist of the counterparts to the transfers of goods or other non-financial operations, are likely to be recorded under currency and deposits and other accounts receivable and payable. But it is possible that some counterparts may take the form of changes in other assets or liabilities, such as the creation or repayment of loans. The cumulative value which is eventually recorded for each item in the Financial Account is a composite figure which is determined by both types of entry jointly, and there is no possibility of separating the two types of entry from each other.

69. The change in the net financial position on the sector's net lending or borrowing is equal to the algebraic sum of the changes for all assets less the sum of the changes for all liabilities (given that increases in liabilities are recorded with a positive sign).

70. As already shown, this change is determined entirely by the sum of the counterpart entries under (1) above, as the entries under (2) associated with financial transactions always have compensating entries elsewhere in the same account which offset them.

71. Claims by institutional units over other units within the same subsector or sector could be cancelled out or consolidated but this is not the procedure adopted in the System because it would result in a loss of information. At the level of the national economy however, i.e., the "sector" consisting of all resident institutional units, it may also be useful to consolidate so that the only changes shown in the Financial Account refer to claims of residents over non-residents and vice-versa, and to gold and SDRs. The Financial Account in this form is the same as the Capital Account of the Balance of Payments.

72. Although the Financial Accounts for the individual sectors of the economy show which sectors are net lenders and which are net borrowers, they do not map the flows of funds from one sector to another. They do not show the destination of funds flowing out of a sector or the origin of funds flowing into a sector. For this purpose a three-dimensional table or matrix is required whereby financial transactions are simultaneously classified by the type of asset or liability, by

the lending or creditor sector and by the borrowing or debtor sector: in other words, a complete and detailed flow-of-funds table.

D.9.2 Flow-of-funds tables

73. The System includes an example of such a complete and detailed flow-of-funds table, namely, table ... . This table represents both a synthesis of the financial accounts for all the sectors of the economy and also a disaggregation of the entries in the accounts in order to identify both parties to the transactions. The compilation of such a detailed flow-of-funds table can be envisaged as taking place in two distinct stages.

74. The first step is to assemble within a single table the Financial Accounts for all the four major sectors of the economy plus the Rest of the World. Whereas the Financial Account for a single sector has one column referring to the transactions in assets and one to transactions in liabilities, the integrated financial account covering all sectors simultaneously has five columns relating to assets, five columns relating to liabilities, plus two columns for the respective totals. Such a table is the same as the financial section of the integrated economic accounts for the nation.

75. It may not contain more information than the individual Financial Accounts from which it is built up but the juxtaposition of the accounts for all the sectors of an economy within the framework of a single table makes it possible to obtain an overview of the principal financial inter-relationships within the economy. Although the individual flows of funds cannot be mapped from one sector to another, it is possible to see at an aggregate level the net lending or borrowing requirements of each of the sectors in the economy and how they are financed. This table can therefore already be regarded as a kind of two-dimensional flow-of-funds table which is valuable in its own right and not merely as a step towards the compilation of a three-dimensional flow-of-funds table.

76. It may also be useful to compile more detailed versions of the table by disaggregating the sectors and classification of financial instruments used. Given the major role played by financial corporations in financial markets, it is obviously desirable to try to decompose the Financial Corporate Sector into its six subsectors - central bank, other depository institutions, etc. Furthermore, it may also be desirable for purposes of analysis and policy-making to further subdivide the subsectors according to the type of ownership of the corporations - public, national, private and foreign-controlled. Similarly, it is possible to use the more detailed, or second level, of classification of financial instruments, distinguishing, for example, short from long-term securities or loans.

77. Dividing sectors into subsectors increases the number of columns in the two-dimensional flow-of-funds table, while using a more detailed classification of financial instruments increases the number of rows. The resulting matrix, although two-dimensional, could be quite large.

78. In order to go to the three-dimensional matrix it is necessary to take the additional step which consists of identifying both parties to each financial transaction. The entry in each individual cell of the two-dimensional matrix has to be decomposed according to the sector or subsector to which the other party to the transaction belongs. For example, purchases of bonds by financial corporations (or by a subsector of the Financial Corporate Sector) can be sub-divided according

to the sector or subsector to which the institutional unit issuing or selling the bonds belongs. This involves disaggregating each entry in the Financial Account for a sector into several components, depending upon the number of sectors or subsectors which it is appropriate or feasible to distinguish.

79. Suppose, for purposes of exposition, that each entry were to be sub-divided into exactly five components, one for each major sector plus the Rest of the World. This would be equivalent to compiling five sets of financial accounts showing each sector's financial transactions with each of the other sectors and the Rest of the World separately. These five tables could then be assembled to form a three-dimensional matrix each cell of which records the value of a set of financial transactions cross-classified simultaneously by the type of financial instrument, the lending sector and the borrowing sector. In principle, a detailed flow-of-funds table can be interpreted as a three-dimensional matrix of this type. In practice, the matrix may not be perfectly regular because the number of sectors and type of subsectors distinguished may not be the same for each type of financial instrument. Moreover, for purposes of presentation, it is convenient to represent the matrix not as a series of parallel tables but as a decomposition of the cells of a single table, as shown in table ... .

80. The breakdown by partner sector in table ... varies according to the type of financial instrument. For most financial instruments the following standard breakdown is proposed:

(i) Non-financial corporations;

(ii) Financial corporations;

(iii) Central government, including Social Security;

(iv) State and local government including Social Security;

(v) Households and NPIs serving households;

(vi) Non-resident units (or Rest of the World).

Other breakdowns may be envisaged which give more importance to other criteria, such as the difference between publicly and privately owned corporations or between domestically and foreign controlled corporations. Currency and deposits receive special treatment in the table. A detailed classification is proposed in which a distinction is drawn between:

(a) currency;

(b) transferable deposits;

(c) other deposits;

assuming that it is feasible to draw a clear distinction between transferable deposits and other deposits (see paras. ..., below). These instruments are then further sub-divided between those denominated in the national currency and those in foreign currencies. Finally, transactions in currency and deposits are divided between those conducted with resident institutional units and those with non-residents.

81. Table ... can be interpreted as a target or model which may need to be considerably condensed or modified in order to be implemented. Just as the System does not recommend how many individual goods and services or industries should be distinguished in the detailed input-output table, it is not possible to generalise about what is the minimal or optimal degree of detail which should be preserved in a detailed flow-of-funds table such as table ... For purposes of financial analysis and policy-making more detail is generally preferred to less, but it is also necessary to take account of the structure and stage of economic development of a country and the relative importance of its Financial Sector. In the short term data availability is the ultimate constraint on the degree of detail which is feasible, but in the longer term data availability is not fixed and is itself influenced by analytical and policy needs. The purpose of table ... is to indicate the direction in which countries should be moving in order to obtain the kind of data needed for the analysis of financial markets and their impact on the economy.

E. The classification of financial instruments

E.1 Introduction

82. The Financial Account for an institutional unit or sector records its transactions in financial assets or liabilities. One institutional unit (a creditor) is said to have a over a second unit (a debtor) when the second unit accepts an obligation to make specified monetary payments to the first on specified occasions or under specified circumstances. The obligation should normally be unconditional from the point of view of both the creditor and the debtor: that is, it ought not to depend on the occurrence or non-occurrence of an uncertain event outside the control of either the creditor or the debtor. Financial claims and liabilities may be extinguished by the repayment of an agreed sum, the redemption value.

83. All financial claims, and the associated liabilities, constitute financial assets and liabilities. However, financial assets also include certain assets which cannot properly be described as claims over other designated institutional units. There are three such types of asset:

(1) Monetary gold: that is, gold owned by monetary authorities and others subject to their effective control which is held as a financial asset and as a component of foreign reserves.

(2) Special Drawing Rights (SDRs): these are a composite reserve asset issued by the International Monetary Fund (IMF): they are not considered as a liability of the IMF and IMF members to whom SDRs are allocated do not have an actual (unconditional) liability to repay their SDR allocation.

(3) Shares on other corporate equity securities or capital participation; the issue of shares is an alternative method of finance to borrowing and shares are close substitutes for other financial assets. The liability with respect to a share does not represent a fixed redemption value but rather a claim on the net worth of the corporation.

84. Seven main categories of financial instrument are distinguished in the System and are listed in the following table: the contents of each category are described in detail in later sections.

Classification of Financial Instruments

1. Gold and SDRs
2. Currency and deposits
    - a. Currency
    - b. Transferable deposits
    - c. Other deposits
3. Securities other than shares
    - a. Short-term
    - b. Long-term
4. Loans
    - a. Short-term
    - b. Long-term
5. Shares and other equity
6. Insurance technical reserves
    - 6.1 Net equity of households on life insurance reserves and on pension funds
    - 6.2 Prepayments of premiums and reserves against unsettled claims
7. Other accounts receivable and payable
    - 7.1 Trade credit and advances
    - 7.2 Other

Memorandum item:

- Direct investment
    - Equity
    - Loans
    - Other

Note: The recommended breakdown of items (2), (3) and (4) into (a), (b) or (c) is optional.

85. The Financial Account lists contains the same seven categories of financial instrument on both sides of the account: the left-hand side of the account records the net acquisition of assets according to category of financial instrument while the right-hand side records the net incurrence of liabilities by category of financial instrument. The net acquisition of assets is equal to the total assets acquired less the total assets relinquished during the accounting period as a whole, while the net incurrence of liabilities is equal to the total liabilities incurred less the total liabilities repaid or extinguished.

E.2 The classification criteria

86. The classification financial instruments adopted in the System is based mainly on two kinds of criteria, namely the legal characteristics of the instrument that describe the form of the underlying creditor/debtor relationship and the liquidity of the instrument. The concept of liquidity embraces other more specific characteristics such as negotiability, transferability, marketability or convertibility, but it is not possible to build these into the classification framework in any systematic way.

87. The most liquid financial instruments are those which can be exchanged on demand, and without financial penalty, for other instruments or for goods or services. These consist of gold, currency and transferable deposits and are included under categories (1) and (2) of the classification. Within category (2) a distinction is drawn between transferable and non-transferable deposits, the latter being less liquid than the former. Non-transferable deposits include savings or term deposits and also shares, or similar evidence of deposit, issued by savings and loan associations, building societies, credit unions and the like. However, the boundary between transferable and non-transferable deposits may not be stable in many countries. For example, certain financial institutions may start to provide partial or full checking facilities, or issue bank or credit cards, in respect of deposit accounts which were previously not transferable. As a result of financial innovation, technological progress in computers and communications and the force of competition, the distinction between transferable and non-transferable deposits has become both blurred and unstable. For these reasons, it may be difficult and not very useful analytically, at least in some countries, to try to draw a clear distinction between transferable and non-transferable deposits and the System does not therefore build this distinction into the classification at the first level. When the financial market and system is such that a clear distinction can be drawn, it is recommended that it should be made, although the distinction comes in at the second level of the classification and is not may be treated as optional. It follows that there is no single concept of money supply which is implicit in the System. Currency plus transferable deposits may approximate to a concept of "narrow money" as traditionally understood in economics but there is also a range of broader monetary aggregates which could be defined. It is not possible to provide any universal definition of money which would be operational and useful across a group of countries and over a long period of time. Even within a single country the definitions of narrow or broad money tend to shift over time in response to changes in financial instruments and the organization of money markets as a result of innovation, deregulation or technical progress.

88. It should be noted that the System requires currency and deposits to be cross-classified, whenever possible, according to: (a) whether they are dominated in domestic currency or in foreign currency; and (b) whether they are liabilities and assets of resident units or of non-residents.

89. A less liquid group of financial instruments consists of bills and bonds, although the traditional distinction between bills and bonds is not built into the classification. This distinction has also become somewhat blurred in some countries as a result of financial innovation: for example, a zero-coupon bond with a maturity of several years could well be described as a long-term bill.

90. In the case of both securities and loans another possible classification criterion is the time to maturity. However, because of differences between countries in types of financial instruments and in the way in which financial markets are organized it is recommended that the boundary between short- and long-term assets should not necessarily be the same for all countries. In some countries, it may be appropriate to continue to define short-term assets as securities or loans with an original maturity of up to one year, this being the traditional or conventional boundary between short- and long-term. In other countries, however, it may be appropriate to define short-term assets as securities or loans with an original maturity of up to two years. In order to ensure reasonable comparability between countries, however, it is recommended that the upper limit for the original maturity of a short-term asset should not be extended beyond two years, while most countries may prefer to retain the traditional cut-off point of one year.

91. In many countries or financial markets, the concept of maturity may no longer have as much operational significance as in the past. For example, it is common to "roll over" so called short-term assets repeatedly from one period to the next, in which case the relevance of the nominal maturity may be questionable in practice. Similarly, a long-term mortgage or loan subject to variations in interest rates could be regarded as a series of short-term loans which are implicitly renegotiated each term the interest rate is varied. For these kinds of reasons, the concept of maturity is not accorded the same priority as in the past.

E.3 Summary descriptions of financial assets and liabilities

(Definitions of general terms are given at the end of this section.)

E.3.1 Gold and SDRs

92. This category comprises all assets which are recognized as financial assets but for which no entity is considered to have a corresponding financial liability. These are monetary gold and special drawing rights issued by the IMF.

93. Monetary gold consists of gold owned by the authorities or others subject to their effective control that is held as a financial asset and as a component of foreign reserves. Other gold held by any entity (including non-reserves gold held by the authorities and all gold held by financial institutions other than the central bank) is treated as a commodity and not as a financial asset.

94. Special Drawing Rights (SDRs) are composite fiduciary reserve assets created by the International Monetary Fund to supplement existing reserve assets. They are not considered liabilities of the IMF and IMF Members to whom SDRs are allocated do not have an actual (unconditional) liability to repay their SDR allocations. They are held exclusively by official holders which are normally central banks. They are transferable among participants in the IMF's Special Drawing Rights Department and other holders designated by the IMF. They represent each holder's assured and unconditional right to obtain other reserve assets, especially foreign exchange.

95. The transactions whereby SDRs are created (referred to as allocations of SDRs) and may be extinguished (cancellations of SDRs) are treated as unrequited transfers in that an official holder acquires, or gives up, a financial asset without providing, or receiving, anything of value in exchange. Transfers of SDRs among official holders are recorded in the same way as transactions in other financial assets.

E.3.2 Currency and deposits

96. The total of currency, transferable deposits, and other deposits should be calculated by all compilers. Where it is considered useful in country-specific cases, separate data should be compiled for each component.

(a) Currency

Currency comprises those notes and coin in circulation which are commonly used to make payments. Commemorative coins should be excluded. Distinctions should be drawn between national currency and foreign currency, i.e. currency which is the liability of resident bodies (central banks and central governments) and currency which is a liability of non-resident institutions (e.g., foreign central banks and governments).

(b) Transferable deposits

Transferable deposits comprise all deposits which are: (a) exchangeable on demand at par, without penalty or restriction; (b) freely transferable by check or giro-order; and (c) otherwise commonly used to make payments. Transferable deposits should be cross-classified according to: (a) whether they are denominated in domestic currency or in foreign currencies; and (b) whether they are liabilities and assets of the resident sectors or of non-residents.

(c) Other deposits

Other deposits include all claims, other than transferable deposits, on the central bank, other depository institutions, and government organs that are represented by evidence of deposit. Typical forms of deposits that should be included under this classification are non-transferable savings deposits, term deposits and non-transferable foreign currency denominated deposits. The category also covers shares, or similar evidence of deposit, issued by savings and loan associations, building societies, credit unions, and the like, which are legally, or in practice, redeemable on demand or at relatively short notice. Claims on the IMF which are components of international reserves 1/ other than those evidenced by loans (which should be included in category 4. Loans) should be recorded here. Overnight and very short-term repurchase agreements should be included here if they are considered part of national broad money definitions. Other repurchase agreements should be classified under item 4. The category "Other deposits" should be cross-classified according to: (a) whether they are denominated in domestic currency or in foreign currencies; and (b) whether they are liabilities and assets of the resident sectors or of non-residents.

1/ This comprises the Reserve Tranche Position in the IMF.

E.3.3 Securities other than shares

97. Securities, other than shares, include bills, bonds, debentures, unconditional hedging instruments, and similar instruments that are normally traded in the financial markets. Bills are defined as securities which give the holder the unconditional right to receive a stated fixed sum on a specified date; they are issued and traded in organized markets at a discount which depends on the rate of interest and the time to maturity. Examples of bills are securities such as Treasury bills, negotiable certificates of deposit, bankers' acceptances, commercial paper and notes, and long-term securities such as zero-coupon bonds. Bonds and debentures are securities that give the holder the unconditional right to a fixed money income or contractually determined variable money income, that is, payment of interest is not dependent on the earnings of the debtor. With the exception of perpetual bonds, bonds and debentures also give the holder the unconditional right to a fixed sum as a repayment of principal on a specified date or dates. Negotiable securities backed by loans or other assets such as accounts receivable should be classified here as should loans which have become negotiable *de facto*. Preferred stocks or shares which pay a fixed income but do not provide for participation in the distribution of the residual earnings or value on dissolution are included. Bonds that are convertible into shares should be classified in this category. (The conversion option may be viewed as an asset separate from the underlying security and viewed as an intangible asset. If this is to be done, a method for splitting the value of the instrument between the discounted rate of return and the value of the option would have to be developed.) Mortgages are not classified as bonds; they are included under loans.

98. An optional subclassification of securities other than shares by maturity into short-term and long-term should be based on the following criteria:

(a) Short term

Short-term securities other than shares include those securities that have an original maturity of one year or less but with a maximum of two years to accommodate variations in practice between countries. Claims with optional maturity dates, the latest of which is more than one year away, and claims with indefinite maturity dates should be classified as long-term. Securities which meet these criteria should be classified as short-term even if they are issued under long-term facilities such as Note Issuance Facilities (NIFs).

(b) Long term

Long-term securities other than shares include those securities that have an original maturity of more than one year; however, to accommodate variations in practice between countries, long-term may be defined to include an original maturity in excess of two years.

E.3.4 Loans

99. Loans include all financial assets which are created when creditors lend funds directly to debtors that are evidenced by non-negotiable documents or for which the lender receives no security evidencing the transaction. This category includes all loans, advances (apart from trade credit and advances receivable or payable, see item 7.1 below) extended to business, government and households, etc., by banks, finance companies and others including instalment loans, hire-purchase credit and

loans to finance trade credit. Claims on the IMF evidenced by loans should be included here. Repurchase agreements not included in national broad money definitions as well as financial leases and similar arrangements should also be included here. It is useful to subdivide the category of loans according to the resident sectors and the non-resident sector in the case of debtors and creditors, respectively.

(a) Short term

Short-term loans comprise loans which normally have an original maturity of one year or less, but with a maximum of two years to accommodate variations in practice between countries. All loans repayable on demand should be classified as short term even when these loans are expected to be outstanding for one or more.

(b) Long term

Long-term loans comprise loans which normally have an original maturity of more than one year, except that, to accommodate variations in practice between countries, long term may be defined to require an original maturity in excess of two years. It may also be useful to distinguish loans secured by mortgages from other long-term loans.

E.3.5 Shares and other equity

100. This category includes proprietors' net equity in quasi-corporate enterprises as well as shares and equities in incorporated enterprises. Shares and other equities comprise all instruments and records acknowledging claims to the residual value, and residual income, of incorporated enterprises, after the claims of all creditors have been met. Equity securities do not provide the right to a pre-determined income, or to a fixed sum on dissolution of the incorporated enterprise. Ownership of equity is usually evidenced by shares, stocks, participation or similar documents. Preferred stocks or shares which also provide for participation in the distribution of the residual earnings, or value on dissolution, of an incorporated enterprise are included. Shares and equities in incorporated enterprises should be subdivided into those issued by: (a) resident corporations; and (b) non-resident corporations; in each case securities quoted on the stock exchange should also be distinguished from other securities. Proprietors' net additions to the equity of quasi-corporate enterprises are the net additions which owners of such enterprises make to the funds and other resources of these enterprises in order to increase, or reduce, the capital assets of the quasi-corporate enterprise. For balance sheet data, proprietors' net equity in enterprises may be derived as the difference between the sum of the value of the assets of quasi-corporate enterprises and the sum of the value of their liabilities to third parties. To facilitate the detailed analysis of claims, it is recommended that these categories should be subdivided into resident and non-resident quasi-corporate enterprises and resident and non-resident owners, respectively.

E.3.6 Insurance technical reserves

Net equity of households on life insurance reserves and on pension funds

101. This category comprises the reserves held against life insurance and annuity policies by insurance companies, whether mutual or incorporated, and by employees' pension funds, friendly societies, and similar bodies, to cover: (a) the risks of

insuring during a period of account; (b) prepayments of premiums in respect of future risks; and (c) other elements of saving involved in the policies.

Prepayments of premiums and reserves against unsettled claims

102. This category comprises prepayment of premiums and reserves held by insurance companies (including automobile, health, term life, accident/injury, income maintenance and other forms of casualty insurance) against claims.

E.3.7 Other accounts receivable and payable

Trade credit and advances

103. This category comprises trade credit for goods and services extended directly to enterprises, government and to households (as opposed to loans to finance trade credit which are classified under item 4), and also advances for work which is in progress or is to be undertaken. It is useful to subdivide this category according to the resident sectors and non-resident sector in the case of debtors and creditors, respectively, when compiling detailed data on claims. (It may also be of value to separate short-term trade credits and advances from long-term trade credit and advances, using the same criteria as are used to distinguish between other short- and long-term financial instruments.)

Other

104. This category includes:

(a) accounts receivable and payable, other than those included above (e.g., in respect of taxes, interest, dividends, rent, wages and salaries, and insurance claims which are due to be received or paid);

(b) inconsistencies that arise from differences in the time of recording between payments and receipts in respect of financial claims;

(c) statistical discrepancies between a category of financial assets and the corresponding liabilities for which it is not possible to adjust the data within the categories listed above. It will be valuable, if feasible, to indicate the extent to which inconsistencies in the time of recording and statistical discrepancies account for the data entered here, and the broad categories of claims to which these inconsistencies and discrepancies relate. Other accounts receivable and payable should be subdivided according to the resident sectors and the Rest of the World in the case of the debtor and creditor, respectively.

E.3.8 Memorandum item

Direct investment

105. Financial assets and liabilities arising from the provision of, or receipt of, direct investment are to be recorded under the appropriate categories listed above, i.e. shares and other equity (item 5); loans (item 4); and other accounts receivable and payable (item 7). However, the amounts of direct investment included within each of those categories should also be recorded separately as a memorandum item.

E.3.9 Definitions of some general terms

106. A bill is a security which gives the holder an unconditional right to receive a stated fixed sum when the bill matures on a specified date and which is issued and traded in organized markets at a discount which depends on the rate of interest and the length of time to maturity.

107. A bond is a security which is usually issued and traded in organized markets and which gives the holder the unconditional right to a fixed money income or contractually determined variable money income. Thus, the payment of interest is not dependent on the earnings of the debtor. With the exception of perpetual bonds (consols), a bond also gives the holder the unconditional right to a stated fixed sum on a specified date or dates.

108. A loan is the asset created when a creditor lends funds directly to a debtor and the creditor receives either a non-negotiable instrument or no security evidencing the transaction. Included are instruments which are essentially special types of loans even though the legal form of the contract may not make this apparent: for example, financial leases and repurchase agreements which are not included in money measures and loans evidenced by a non-negotiable security.

109. A contingent asset is an asset which may become actual or unqualified when conditions previously unfulfilled are satisfied. Examples are lines of credit; guarantees, letters of credit and note issuance facilities (NIFs) which may become actual assets if certain conditions (utilization of line of credit, default by primary obligor, presentation of required documents and failure of the market to take up all of a note issue) are fulfilled. A financial asset is considered an actual asset when the relationship between both parties to the transaction is unconditional. For example, a deposit is the unconditional liability of the institution accepting it, while the depositor has an unconditional right to the amount deposited; bonds, bills and loans are unconditional in the same sense. An asset which is unconditional on only one side of the transaction should not be classified as a financial asset. Examples include options and warrants where the writer has an unconditional liability to complete the transaction while the purchaser may or may not exercise the option.

110. Hedging instruments are arrangements entered into to offset or to minimize risks of loss due to price fluctuations. Hedging is a risk management tool that consists of counterbalancing a present sale or purchase (of commodities or financial instruments) by a purchase or sale for delivery at some future date. The use of hedging instruments interest rates, exchange rates and commodity prices move in a volatile fashion. Hedging instruments consist of instruments that can be traded on markets such as future contracts and options and techniques such as interest rate and currency swaps that cannot be traded. These instruments may be used for hedging or transacted for speculative purposes; this may affect the treatment of the instruments in accounting records. Marketable hedging instruments which involve unconditional requirements on both transactors should be classified under Securities other than shares.

111. Securities are marketable instruments that represent: (i) legal claims on another institutional unit's wealth; (ii) a share of legal ownership of an incorporated enterprise; or (iii) legal claims on a physical commodity.

F. The treatment of net equity in quasi-corporations

112. This and the following section are intended to provide further details or explanation about the treatment of transactions in certain types of financial assets and liabilities to supplement the brief descriptions given in the previous section.

113. Proprietors' net equity in quasi-corporations is one of the components of item (5) of the classification, shares and other equity, although it is not distinguished as a separate category in the classification. The net equity of a quasi-corporation is measured by the sum of the values of all of the assets used by the quasi-corporation less the sum of its liabilities. While there may be little difficulty in identifying and valuing the fixed assets used for purposes of production by the quasi-corporation, there may be more difficulty in isolating the financial or other assets and liabilities of the quasi-corporation from those of its proprietor(s) when a quasi-corporation does not have a separate legal identity. However, in order to be treated as a quasi-corporation in the System, a bank account (or accounts) is very likely to be maintained in the name of the enterprise: the entries and withdrawals from such an account, if it exists, should make it possible to distinguish the flows of income and capital between a quasi-corporation and its proprietor(s) which are recorded in the accounts of the System.

114. The Financial Accounts record the proprietors' net additions to the equity of quasi-corporations. In practice, a quasi-corporation, as distinct from its proprietor(s), is unlikely to own intangible assets, so that net additions to the equity of quasi-corporations should normally consist of net acquisitions of tangible or financial assets which have either been supplied directly by their proprietors or paid for out of funds supplied by their proprietors. It is not feasible to distinguish capital transfers between the proprietor(s) and the enterprise from net additions to the equity of quasi-corporations in practice and it may be assumed that no capital transfers take place between quasi-corporations and their proprietors other than net additions to the equity of quasi-corporations.

115. Thus, additions to the equity of quasi-corporations are measured by the value of the additional tangible or financial assets supplied, or paid for, or liabilities paid off, by their proprietor(s), while reductions to equity consist of assets withdrawn from the quasi-corporation or the withdrawal of funds obtained by liquidating assets used by the quasi-corporations.

116. In the case of a quasi-corporation which is a direct investment enterprise wholly owned by non-residents (typically the foreign branch of corporate or unincorporated enterprise), it is assumed that all is retained earnings are remitted back to the parent enterprise(s) and then reinvested in the form of an addition to the net equity of the quasi-corporation. It is, of course, open to the proprietor(s) to make additional investments in the equity of direct investment enterprises over and above the amount of the retained earnings, or alternatively to withdraw capital.

G. Insurance technical reserves

117. Insurance technical reserves cover four elements:

- actuarial reserves against outstanding risks;
- reserves for with-profits insurance;
- prepayments of premiums;
- reserves against unsettled claims.

The first three are considered to be assets of policy holders, while reserves against unsettled claims are assets of the beneficiaries. Insurance technical reserves may be held not only by life or casualty insurance enterprises, whether mutual or incorporated, but also by autonomous pension funds which are included in the insurance enterprise subsector.

118. The category "insurance technical reserves" is divided between the reserves of life insurance and pension funds, and short-term reserves long-term, as follows:

- the net equity of households on life insurance reserves and on pension funds;
- prepayments of premiums and reserves for unsettled claims.

The distinction between the two types of reserves reflects the fact that the net equity of households on life insurance reserves and on pension funds are long-term financial assets linked to the long-term savings plans of households, whereas prepayments of premiums and reserves for unsettled claims are essentially short-term financial assets.

(1) Life insurance reserves

119. The greater part of life insurance reserves consist of the first two components of insurance technical reserves listed above; namely, actuarial reserves against outstanding risks and reserves for with-profits insurance which add to the value on maturity of with-profits endowment or similar policies. The remaining two components, namely, prepayments of premiums and reserves against unsettled claims are relatively less important and are described more fully in a later section. Although held and managed by insurance enterprises, life insurance reserves are considered to be assets of the insured persons or households and not part of the independent net worth of the insurance enterprises. They are collectively described as the net equity of households on life insurance reserves. The Financial Account of the System records the change in the net equity of households on life insurance reserve which results from the following transactions in which insurance enterprises or households are engaged:

(a) Gross additions to the equity of households on life insurance funds consisting of:

(i) the total value of the gross or actual premiums earned which are intended to obtain life insurance cover during the current accounting period less the imputed service charges for life insurance;

(ii) the net property income earned from the investment of the reserves which is attributed to policy-holding households; this is also recorded as a receipt of imputed interest in the income account of resident households, or by the Rest of the World for non-resident households.

(b) Gross reductions in the equity of households on life insurance funds consisting of:

(i) the amounts due to holders of endowment and similar insurance policies when they mature, including the bonuses or profits earned on such policies;

(ii) the amounts due to beneficiaries from deaths of insured persons, including bonuses or profits;

(iii) payments due on policies which are surrendered before maturity.

The item "change in the net equity of households on life insurance reserves" recorded in the Financial Account consists of gross additions less gross reductions as just defined. Changes in the net equity of households between the beginning and end of the accounting period resulting from holding gains or losses on the reserves invested by insurance enterprises are recorded in the Revaluation Account.

(2) Pension funds

120. These consist of the reserves held by private pension funds: that is, autonomous funds established by employers to provide pensions for their employees after their retirement. These reserves, like reserves against life insurance, are considered to be assets of households and not of the institutional units which manage them and can therefore be referred to as the net equity of households on pension funds. The Financial Account of the System records the change in the net equity of households on pension funds resulting from the following transactions in which the funds or the households may be involved:

(a) Gross additions to the equity of pension funds: these consist of

(i) the total value of the gross contributions into pension funds due from employees, employers or other institutional units on behalf of individuals or households with claims on the funds less the administrative expenses of managing the funds which are charged during the period;

(ii) the net property income earned from the investment of the reserves of the pension funds; this is recorded as an imputed receipt of interest in the income account of households.

(b) Gross reductions in the equity of pension funds: these consist of

(i) the total value of the amounts payable to retired persons or their dependants in the form of regular payments each week, month or other period;

(ii) the total value of any lump sums payable to persons when they retire.

The item change in the net equity of households on pension funds recorded in the Financial Account consists of gross additions less gross reductions, as just defined. Changes in the net equity of households between the beginning and the end of the accounting period resulting from holding gains or losses on the invested reserves of pension funds are recorded in the Revolution Account and are not included in the Financial Account.

A note on treatment of pensions and annuities

121. Because of the way in which changes in the net equity of households on life insurance reserves and pension funds are treated in the System, receipts of pensions and annuities by household do not appear in the income account of households. This is not likely to accord with the perceptions of individual household units at a micro level.

122. The rationale behind the treatment of pensions and annuities in the System is that the original premiums paid by households on life insurance policies or contributions paid into pension funds are neither expenditures on goods or services nor transfers to other institutional units. They are, in fact, a form of contractual investment to which the relevant households are committed. Similarly, the imputed interest from the investment of the reserves of life insurance and pension funds is also committed for investment, in practice. Life insurance enterprises and pension funds are, in effect, treated in the System as if they were agents acting on behalf of households who manage the relevant reserves for them. As already stated, the reserves held against life insurance or pension arrangements are deemed to be assets of the households entitled to the benefits and not part of the independent net worth of the insurance enterprises or pension funds, so that the funds paid into such schemes must be treated as being used for the regular acquisition of financial assets under a contractual arrangement to which households are committed.

123. It follows that payment of pensions or annuities out of such funds must be considered as a form of disinvestment. In principle, households receiving pensions, annuities or lump sum benefits are treated as running down their assets and not as receiving some kind of transfers or transfer incomes. Social Security pensions, on the other hand, are treated as transfers because there are generally no properly funded reserves associated with Social Security Funds which could reasonably be treated as assets which belong to households.

(3) Prepayments of insurance premiums and reserves for unsettled claims

124. Prepayments of premiums result from the fact that, in general, insurance premiums are paid in advance: that is, insurance premiums are due to be paid at the start of the period covered by the insurance which does not normally coincide with the accounting period itself. At the end of the accounting period, therefore, when the balance sheet is drawn up, parts of the insurance premiums payable during the accounting period are intended to cover risks in the subsequent period. These prepayments of premiums are assets of the policy holders and form part of the insurance technical reserves. Prepayments of premiums may relate to either life insurance or casualty insurance. The amounts of premiums recorded in the accounts as transactions between policy holders and insurance enterprises consist of the premiums earned - that is, those parts of the premiums paid in the current period or the preceding period which are intended to cover risks outstanding during the current period.

125. Reserves against unsettled claims are reserves which insurance enterprises hold in order to cover the amounts which they expect to pay out in respect of claims which are not yet settled, including claims which may be disputed. Valid

claims which are accepted by insurance enterprises are considered to be due for payment when the eventuality or accident which gives rise to the claim occurs, however long it takes to settle disputed claims. Reserves against unsettled claims are therefore considered to be assets of the beneficiaries and liabilities of the insurance enterprises.

126. The Financial Account of the System records changes in prepayments of premiums and reserves for unsettled claims between the beginning and the end of the accounting period under the general heading of changes in insurance technical reserves.

H. Special kinds of financial instrument

127. This section is concerned with special kinds of financial instrument or financial arrangements which either do not fit directly into one of the categories of the classification of financial instruments given earlier or which turn out not to be financial assets or liabilities as understood in the System. New financial instruments, or financial arrangements, are continually being developed in many countries in which the attributes of financial assets such as legal form, liquidity, marketability, convertibility, etc. are repackaged to obtain new instruments or arrangements designed to meet the requirements of special clients or special circumstances. There is almost no limit to the variety of different instruments or arrangements which can be devised, and it would be impossible to attempt to deal with all such instruments exhaustively and in detail. However, it is possible to consider a number of the more important examples which can be used to illustrate the general principles which must be followed when dealing with such instruments or arrangements.

H.1 Contingent assets and liabilities

128. Contingent assets or liabilities are not treated as financial assets or liabilities in the System. They are more accurately described as arrangements, or contracts, between institutional units which may give rise to actual financial assets in the future. An essential feature of such arranagements is that the contingency which may give rise to the creation of an actual financial asset is not certain to occur. It is useful to give a specific example of such arrangements.

129. A note issuance facility (NIF) is a contractual commitment by a bank or group of banks to fund any notes that a borrower issues in his own name and the bank is unable to sell to a third party. The commitment is typically for five to seven years during which the participating banks are obliged to purchase the unsold notes or stand-by credits. The notes themselves are short-term. The borrower pays an underwriting fee so long as the facility is not drawn.

130. Several features of such arrangements should be noted:

(i) if the banks are actually obliged to purchase the unsold notes the relevant transactions are recorded in the Financial Account in the ordinary way: however, this eventuality may, or may not, occur in practice;

(ii) the obligation, or commitment, is binding on only one of the parties to the arrangement, the bank or group of banks, and it is only a conditional obligation; this feature is in marked contrast to the unconditional rights or obligations of creditors or debtors to which the issuance of a financial asset gives rise;

(iii) the bank, or group of banks, which grants the NIF is providing an underwriting, or insurance type, service to the borrower until such time as any unsold notes are actually taken up by the bank, or group of banks. The latter receives a fee for the provision of this service which is recorded in the production accounts of the System.

131. For purposes of the System, therefore, the treatment of NIFs or similar facilities, is clear. The fees paid by the borrowers are treated as payments for services rendered, while the actual take-up of unsold notes by the bank or group of banks are recorded as financial transactions, if and when they occur. The NIF itself, however, it not a financial asset and may be effectively ignored in the System. From the point of view of monetary policy or management, NIFs certainly cannot be ignored, however, because NIFs represent contingent liabilities of banks which are not recorded on their balance sheets (they are an example of so-called "off-balance sheet" items) but which may nevertheless be transformed into real liabilities as a result of circumstances outside the control of the bank or banks.

132. There are many other examples of contingent assets or liabilities besides NIFs: for example,

(i) lines of credit or letters of credit by which the holder of the instrument is able to obtain funds at some future date if he wishes to do so;

(ii) guarantees whereby the guarantor is obliged to meet the liabilities of another institutional unit in the event of the latter defaulting;

(iii) options to purchase or sell whereby one institutional unit has the right to purchase from, or sell to, another institutional unit a certain amount of financial assets or goods at an agreed, fixed price over a stated period of time; options may, or may not, be exercised in practice depending upon movements in prices, interest rates or exchange rates.

133. In each of the examples just given the issuer of the line of credit, guarantee, option or other facility has only a contingent liability. The obligation to provide funds or make a payment is conditional or binding on only one of the parties to the arrangement or contract. For this reason, such arrangements or contracts cannot be treated as financial assets or liabilities in themselves. Contingent assets or liabilities are transformed into actual financial assets or liabilities only if a particular eventuality occurs or one of the parties to the arrangement chooses to activate the facility.

134. When the arrangement of the kinds of facilities described above entails the payment of fee, this is recorded as a payment for a service, while financial transactions are to be recorded only when the facilities are activated and actual financial assets or liabilities are created.

135. It should be noted, however, that some contingent assets, especially options, may be transferable and therefore bought and sold on the market. It is recommended, however, that such assets should not be treated as financial assets. The market value of an option may be totally different from the contingent liability of the issuer of the option if the option is eventually exercised by its holder. Until the option is exercised, however, there is no actual liability and therefore no financial asset.

H.2 Hedging instruments

136. Hedging instruments are binding arrangements or contracts between institutional units to engage in transactions in the future on specified, pre-determined terms. They are entered into to offset or minimize the risk of loss due to fluctuations in prices, interest rates or exchange rates. Hedging instruments are commitments to engage in future transactions but they differ fundamentally from contingent assets or liabilities in that the future transactions are not uncertain or conditional. The future transactions stipulated in hedging contracts are certain and binding on both parties to the arrangement. Hedging instruments may, therefore, be treated as financial assets or liabilities as they involve an unconditional obligation for both parties to receive or make payments in the future.

(a) Swaps

Swaps are arrangements in which two institutional units agree to an exchange of a stream of payments over a period of time. The streams of payments subject to exchange are usually either interest payments (interest rate swaps) or both interest payments and amortization of principal (currency swaps). For example, a stream of fixed-rate interest payments may be exchanged against a stream of floating-rate interest payments, or floating-rate interest payments may be exchanged against each other, possibly denominated in different currencies. The original borrowing by the parties engaged in the swap would be recorded in their Financial Accounts as increases in liabilities. In order to reflect the true economic nature of these transactions, it is recommended that in the case of simple interest rate swaps the interest payments should be recorded net of payments between the two parties to the arrangement. Neither of the parties should be regarded as providing a service to the other, although one or both parties may have to pay a service fee to the broker arranging the swap.

(b) Forward rate agreements

A forward rate agreement (FRA) is an arrangement whereby two institutional units agree on an interest covering a notional amount of principal which neither party is actually committed to borrow or lend. On the settlement date, only the difference between the agreed interest and the actual interest payable is paid. The buyer of the FRA receives a payment from the seller if the actual interest rate exceeds the agreed rate, while the seller of the FRA receives a payment from the buyer if the actual rate is less than the agreed rate. Only these actual payments between the two parties are recorded in the accounts as interest payments.

(c) Future or forward contracts

A futures transaction is a contract that requires the buyer to take delivery of, and the seller to deliver, a certain amount of a financial asset or good at a fixed price at a set future date. A future or forward contract is unconditional and entails a binding obligation on both buyer and seller, irrespectively of subsequent changes in prices, interest or exchange rates. However, the parties to a futures contract can usually transfer their obligations to third parties by trading on futures markets, in much the same way that options can be traded. When they can be traded in this way, it is proposed that futures or forward contracts should be treated as financial assets as they impose unconditional obligations on both parties, and they should be classified under securities.

H.3 Other kinds of financial instruments

137. In this section, the treatment of certain special kinds of financial instruments will be indicated.

(a) Bankers' acceptances

The acceptance by financial institutions of drafts or bills of exchange that are properly drawn against them for settlement on a specified future date is considered in the System as leading to the creation of new financial assets that are recognized in money markets as actual liabilities of the accepting financial institutions. While there is a case for treating acceptances as contingent, rather than actual, liabilities, it is recommended that they should be treated as actual liabilities of the financial institutions from the time of their acceptance with the institutions' claims on their customers, who issued the original drafts or bills of exchange, as their counterpart assets.

(b) Repurchase agreements

A repurchase agreement is an arrangement whereby an institutional unit sells securities at a specified price under a commitment to repurchase the same, or similar, securities at a later date. Most repurchase agreements are executed either for a fixed term, often one day, or under a contract which remains in effect at the discretion of a purchaser and that may be terminated by the purchaser without advance notice. Most agreements are very short term and the securities often do not change hands. In addition, the purchaser often cannot dispose of the securities. The economic reality of an arrangement of this kind is that the seller of the securities is, in effect, borrowing at short-term using the securities as collateral. As just noted, it is not always clear whether a real change of ownership does take place, even in a legal sense. Repurchase agreements are therefore treated in the System as leading to the creation of a new financial assets having the nature of collateralized loans.

(c) Financial leases

Financial leases are explained in some detail in Chapter ... . A financial lease may be described as an arrangement whereby an institutional unit, usually a financial corporation, purchases a capital good which it leases to another institutional unit over most, or all, of its expected economic life during which time the lessor expects to recover most or all of his principal and interest costs in rentals. The lessor does not select the good or take possession of it, so that the lessor's role is effectively confined to financing the purchase of the capital equipment. Any type of capital good can be the object of a financial lease. Financial leases may be distinguished by the fact that all the risks and rewards of ownership are, *de facto*, transferred from the legal owner of the good, the lessor, to the user of the good, the lessee. In order to capture the economic reality of such arrangements, the System recommends that the goods should be recorded as if they were purchased by the lessee with an imputed loan from the lessor. A financial lease therefore leads to the creation of a new financial asset, namely a loan, which is recorded in the Financial Accounts of the lessor and lessee. The rental payments in respect of a financial leasing contract have to be divided into two parts: repayments of the loan which are recorded in the Financial Account and payments of interest which are recorded in the Income Account.

CHAPTER XI: BALANCE SHEETS AND NET WORTH*

Introduction

1. Balance sheets are statements of the values of stocks of tangible and intangible capital assets owned by institutional units and of the outstanding financial claims between institutional units. In addition to stocks of durable and non-durable producer goods, tangible assets include certain assets, such as land and subsoil assets which may be used in production and over which property rights can be exercised and which may therefore be bought and sold, even though they may not themselves have been produced as outputs from processes of production. Environmental assets such as seas or air over which property rights have not, or cannot, be established are excluded. Assets in the form of human capital - that is, the skills, knowledge and abilities possessed by human beings - are also excluded.

2. A balance sheet relates to the values of assets and liabilities at a particular moment of time and the System requires balance sheets to be compiled at both the beginning and the end of the accounting period, which may be assumed to be one year in this context. The System then calls for a complete accounting of the changes in the values of the various items in the balance sheet between the beginning and end of the accounting period - that is over the same time period as that to which the flow accounts of the System relate.

3. The balancing item in the balance sheet is net worth, which is defined as the value of all the tangible, intangible and financial assets owned by the institutional unit less the value of all its outstanding liabilities including the shares or other equities issued by corporations. Changes in net worth can thus only be explained by examining the changes in all the other items which make up the balance sheet.

4. The change in the value of any individual item between the opening and closing balance sheets may be decomposed into the following elements:

(a) Changes due to actual or imputed transactions in the item in question - purchases or sales of goods, services or assets, changes in stocks, capital consumption, transfers in cash or in kind, the creation, transmission or extinction of financial claims, etc.;

(b) Exogenous changes in the amounts of assets owned due to the creation, destruction or disappearance of assets, or other factors;

(c) Nominal holding gains or losses on assets due to changes in their prices subdivided into:

(i) Gains or losses due to changes in the general price level or general rate of inflation; these are described as "neutral" gains or losses; and

(ii) Real holdings or losses due to changes in the price of the asset relatively to the prices of other goods, services or assets.

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the author.

THE VALUATION OF ASSETS AND LIABILITIES

5. This section will consider the way in which the main types of assets and liabilities recorded in the balance sheets of the System are to be valued. A detailed listing, and classification, of assets and liabilities themselves is given in table < > and this section is devoted primarily to the valuation rather than the precise contents, or coverage, of the various items. Balance sheets require items to be valued which may not have been involved in actual or imputed transactions for a very long period of time. The valuation of such items is intrinsically more difficult than for items in the flow accounts which must have been the objects of some kinds of transactions during the current accounting period. There are certain general principles of valuation which have to be followed for balance sheets.

(1) In order to have balance sheets which are conceptually consistent with the flow accounts of the System the method used to value a particular item should be the same whether it appears as the subject of a transaction in the flow accounts or as one of the components in the opening or closing balance sheets. It follows that assets and liabilities should be valued in the balance sheets at current market prices whenever such prices are actually available for the assets and liabilities in question. When there are no such prices because the items in question have not been transacted on the market in the recent past, an attempt has to be made to estimate what the prices would be if they were to be transacted on the market, even though such an attempt may raise difficult conceptual and practical problems.

(2) As a general rule, therefore, the prices used in balance sheets should be the actual, or estimated, prices prevailing on the market at the date the balance sheet is drawn up, i.e., at the point of time to which the balance sheet refers. However, it is necessary to be more precise about what is meant by a "market price" in the case of assets or liabilities which may be traded very infrequently, or even not at all. In order to be used for valuation purposes, the prices should be those quoted on markets on which the items in question are regularly, actively and freely traded. A few rate, or isolated, transaction prices may be quite inappropriate for valuing a much larger number of items which never find their way on to a market. For example, partly used immovable machinery or equipment, or special purpose structures, may never be sold on the market except in rare situations such as bankruptcy. The prices realized in isolated, forced sales of this kind may not be suitable for valuing similar kinds of assets held by other enterprises. Similarly, if financial assets, such as bills or bonds, are not actively traded in a particular country and are only bought and sold in exceptional circumstances, it may not be appropriate to use the prices at which a few isolated transactions take place for balance sheet purposes.

(3) Whatever method is adopted to value a particular financial asset or liability, the same value should be used when the same financial claim appears in the balance sheets of both the creditor and the debtor, at least when these are both residents of the same country.

(4) Assets and liabilities denominated in foreign currencies should be converted into the national currency at the market exchange prevailing at the time at which the balance sheet is drawn up. This rate may be the "spot" rate, or the mid-point between the buying and selling rates for currency transactions. When a multiple exchange rate system is in operation, the rate to be applied is the rate applying to international transactions in that particular kind of asset or

liability when such a rate can be clearly identified. Otherwise a unitary rate must be selected, such as the rate at which the majority of transactions are conducted, or possibly an average of the different exchange rates.

The valuation of tangible produced assets

6. In general, the value of durable tangible assets which have been produced in the past as outputs from processes of production - namely, durable producers' goods in the form of machinery, equipment and structures - should be valued by writing down the current market prices of these assets by the cumulative capital consumption valued at current prices which has occurred since the time they were acquired for purposes of production. The calculation of capital consumption is discussed in Chapter < > and only a brief summary will be given here. It is recommended that in general that the straight-line method should be used: that is, the capital consumption in any single year is $\frac{1}{n}$ of the current market price of a new asset where n is the estimated service life. Thus, for an asset whose current price is p and which has been in use for k years, the cumulative capital consumption is equal to $\frac{kp}{n}$ and the written down value is $\frac{(n-k)p}{n}$. As suggested in Chapter < > the use of the straight-line method is recommended not merely on grounds of simplicity and its widespread use in business accounting, but because the decline in the discounted present value of the remaining future earnings from the use of the asset in production may be expected to be approximately constant from period to period in many cases.

7. The main practical problem is that many of the assets which are still being used in production and whose values have to be recorded in the balance sheets may no longer be produced themselves, at least in the same versions, models or qualities, so that there may be no current prices to be observed on markets which can be used for balance sheet purposes. In such cases, it is necessary to estimate current market prices, notwithstanding the difficult conceptual and practical problems involved, by updating the original purchaser's price paid for the good in the past by means of a price index covering durable goods whose physical characteristics are as similar as possible to the good in question. For goods produced many years ago it may be necessary to use a chain index obtained by linking together price indices covering slightly different baskets of goods in different time periods.

8. For some types of capital goods, the method just described may be expected to yield quite satisfactory results. For example, although a particular type of dwelling, building or other structure may no longer be produced, it may be possible to compile a satisfactory price index for new structures of the same general type which can be used to estimate what the current price of the structure would be if it were to be produced in the current period. In the case of machinery and equipment it may be more difficult to obtain satisfactory price indices which are specific to that particular type of equipment, and it may be necessary to resort to indices covering a wider group of capital goods. In some cases, it may even be necessary to use general price indices.

9. Updating the original purchaser's price by a price index covering goods which are as similar as possible to the particular capital asset in question is the method which is implicitly followed when the so-called "perpetual inventory" method is employed to obtain estimates of the current values of the gross and net stocks of producers' durable goods needed for the analysis of production and productivity growth and not only for balance sheet purposes. Capital goods of different

vintages which were put in place m years ago and which are still in use, or available for use in production, are revalued to current prices by using price indices to estimate the amounts by which their prices have changed over the intervening m years up to the current period. The net values which are required for balance sheet purposes are obtained by deducting the cumulative capital consumption incurred on each surviving durable producer's good.

10. The perpetual inventory method is usually applied at a macro level for an industry, sector or the economy as a whole. However, the same method can be used in the case of an individual institutional unit to update the original purchasers' prices (or historic costs) of its assets to current prices. Unadjusted historic cost figures should never be used; historic cost values for different years are not commensurate with each other when the prices of the asset differ from year to year so that cumulating historic cost data for capital goods of different vintages does not yield totals which are economically meaningful or analytically useful.

Livestock

11. Animals which are not reared for slaughter are treated as durable producers' goods. They consist of draught animals, dairy cattle, sheep or other animals used for wool production, animals used for racing or entertainment and breeding stocks. For balance sheet purposes, they should be valued on the basis of the current market prices for animals of a given age.

Consumer durable

12. Ordinary consumer durable which are not used by households as stores of value are only to be included in balance sheets as memorandum items. It is recommended to calculate the stocks of consumer durable held by households valued at current prices, both gross and net of accumulated capital consumption. The figures shown as memorandum items in balance sheet should be not of accumulated capital consumption.

13. The durable goods owned by owners of unincorporated enterprises may be used partly by the enterprise for purposes of production and partly by members of the household for purposes of consumption. In principle, the values shown in the balance sheet for the enterprise should reflect the proportion of the use which is attributable to the enterprise, but this may not be known in practice. If it is necessary, as a result of lack of information to allocate the whole of the value of such a good either to the enterprise or to the household, it is recommended to include it in the balance sheet of the enterprise.

Stocks

14. Stocks of goods produced as outputs or intended for intermediate use in production should be valued at the prices prevailing at the date the balance sheet is drawn up, and not at the prices at which the goods were valued when they entered stock.

15. Stocks of outputs should be valued at current basic prices and stocks of inputs at current purchasers' prices. Work-in-progress should be valued on the basis of the costs of production incurred updated to the prices and costs prevailing at the time the balance sheet is drawn up. The value of work-in-progress should include a mark-up for profits when the size of the mark-up is known with reasonable certainty in advance.

The valuation of tangible non-reproducible assets

Land

16. The current market value of land can vary enormously according to its location and the uses for which it is suitable or sanctioned. For balance sheet purposes, it is therefore essential to identify exactly what kind of land is involved and to price it accordingly. In most countries, land is continually changing ownership on property markets and the appropriate prices prevailing on such markets at the time at which the balance sheet is drawn up should be used for valuation purposes.

17. The quality, and hence value, of land may be greatly improved by various kinds of construction work such as levelling, drainage, dykes, irrigation, etc. undertaken not only for agricultural purposes but also to make the land more suitable for the construction of dwellings or other buildings. Improvements in the quality of the land of this kind cannot be physically separated from the land itself, in contrast to structures erected on land which can be bought and sold separately from the land on which they stand. Thus, although expenditures on land improvements are treated as gross capital formation in the System, they do not lead to tangible assets which can be shown in balance sheets separately from the land itself.

18. It may be possible to estimate the current value of existing buildings or other structures erected on land from the prices of the same kinds of buildings or structures which are bought and sold in the current period. Otherwise, the original purchaser's price paid for a building or structure has to be updated using an appropriate price index, as already stated. In either case, it is important to establish whether or not the price includes the land on which it is situated. When there is a single, inclusive price covering both the building or structure and the land, it is not necessary to try to split the price between the structure and the land. The inclusive price should normally be attributed to the building or structure for balance sheet purposes unless it is clear that the value of the land itself greatly exceeds that of the structure.

Subsoil assets

19. In principle, the value of subsoil assets consisting of reserves of fossil fuels or metallic or non-metallic ones is determined by the discounted, or present, value of the expected net profits resulting from the commercial exploitation of those assets, although such valuations are subject to great uncertainty and liable to considerable revision. As the ownership of subsoil assets does not change hands frequently on markets it may be difficult to obtain appropriate market prices which can be used for valuation purposes. In practice, it may be necessary to use the valuations which the owners of the assets place on them in their own accounts.

Historic monuments

20. It is proposed that a value should be placed on such monuments only when they have actually been purchased on the market; they should be valued at the price paid by the current owner updated by a general price index.

Works of art, antiques, jewellery, precious stones and metals used as stores of value

21. These must be valued at current market prices. Well organized markets exist for all those items and they should be valued at the actual or estimated prices which would be paid for them if they were offered for sale.

The valuation of intangible assets

Introduction

22. Whenever possible, intangible assets should be valued at current market prices when they are actually traded on markets (e.g. options). Otherwise, it may be necessary to use estimates of the discounted, or present, value of the expected future receipts (e.g. royalties) to be received by the owners of such assets. In the case of intangible assets which have been produced on own account (e.g. research and development) it may be necessary to value them on the basis of their costs of production if it is not possible to make realistic estimates of the discounted value of the expected future receipts attributable to the commercial exploitation of the asset.

Research and development

23. In principle, the value of research and development assets at the disposal of a producer should be valued on the basis of the estimated discounted value of the future returns which are expected from the exploitation of the research and development. Such estimates are generally highly uncertain and it may not be possible to obtain realistic estimates in practice.

24. It is proposed, therefore, that when the research and development has been undertaken by another institutional unit, it should be valued on the basis of the value of the contract awarded to the other unit to undertake the research. If the research and development was produced on own account, it should be valued on the basis of the costs of production involved, including overhead costs. The value of research and development undertaken in the past which has not been fully written off must be revalued at the prices or costs of the current period in the same way as durable producers' goods. When patents are taken out on the results obtained from research and development, the value of such patents should not be recorded separately under patents, copyrights etc., in order to avoid double counting. If the value of a patent taken out as a result of research and development exceeds the value of the estimated research and development asset, the value of the patent should be used as the value of the corresponding research and development asset.

25. The service lives of research and development assets may be estimated by referring to the lengths of lives assumed by business firms and tax authorities. They may also be estimated by referring to the number of years over which patents are granted. In general, the order of magnitude of such service lives seems to be around 10 years and an assumption of 10 years could be used in default of any other information. The value of research and development assets should be written off at a linear rate.

Exploration for subsoil assets

26. As in the case of research and development assets, it is proposed that exploration assets should be valued either on the basis of the amounts paid under contracts awarded to other institutional units for the purpose or on the basis of the costs incurred for exploration undertaken on own account. The value of exploration undertaken in the past which has not yet been fully written off should be revalued at the prices and costs of the current period.

27. The service lives of exploration assets should be based on the assumed lives which are used by businesses in this field and the assets should be written off at a linear rate. It is also necessary to avoid double counting exploration assets and the values of known reserves of subsoil assets.

Software

28. Computer software should be valued on the basis of the purchasers' price paid for the software or on the basis of costs of production when produced in house. Software acquired in previous years and not yet fully written off should be revalued at current prices at costs (which may be less than the original price or cost). The service lives of software assets should be estimated by taking the advice of experts in the field and the assets should be written off at a linear rate.

Leases on land and buildings or other structures

29. A tenant, or lessee, may hold a long term lease on land or a building which guarantees the tenant's or lessee's right to occupy the land or building for many years. If the terms under which the lease is signed are such that the rent or rentals paid under the lease diverge from the market rents or rentals for equivalent land or property, the lease acquires a capital value which belongs to the holder of the lease - i.e., the tenant or lessee - and which is usually also marketable. In such cases, leases should be valued on the basis of their current market prices and included in the balance sheets of the holders. It follows that the values of the same land or buildings in the balance sheets of their legal owners, or lessors, should be shown as equal to their freehold market values less the values of the leases as shown in the balance sheets of the tenants, or lessees.

Other leases

30. A lease to exploit subsoil assets, or to utilize a patent, copyright or franchise, may also generate a capital value for the lessee if the royalties paid under the lease are small in relation to the profits earned and the lease is transferable. The values of such leases should only be included in the balance sheets of lessees when their market value is known with reasonable certainty.

Intellectual property and similar property rights

31. These assets consist mainly of rights (such as patents, copyrights, franchises, trade marks, etc.) which entitle their owners to engage in certain specified activities, or to produce certain specified goods or services, which other institutional units are prevented by law, or custom, from doing except with the permission of the owner of the right. Property income in the form of a royalty is generated when the owner grants permission to other institutional units to make

use of the patent, copyright, etc. The value of such assets is given by the discounted, or present, value of the stream of future net returns which their owners may expect to receive from their commercial exploitation, including any royalties received from other institutional units. Many, but not all, such property rights are marketable and they should be valued on the basis of the price paid when they have been purchased on the market. Prices paid in earlier periods should be revalued to those of the current period using a general price index for this purpose. It should be noted that when such assets are valued on the basis of prices actually paid for them in the past, it will generally be necessary to write down the value of the asset overtime,depending upon the number of years over which royalties or other returns can be expected to be received. Good will which is quite specific to an individual producer and therefore not transferable should not be treated as an intangible asset. No value should be recorded for goodwill in the balance sheets.

Options

32. Options to purchase or sell assets or goods at agreed fixed prices should be valued at the prices at which the options themselves are traded on financial markets.

The valuation of financial assets and liabilities

Introduction

33. In line with the general valuation principles described earlier, financial assets and liabilities should be valued at current market prices whenever they are regularly traded on organized financial markets and they should also be assigned the same value in balance sheets whether they appear as assets or liabilities. In practice, many assets are not traded in sufficient quantities, or not at all, on financial markets and it is necessary to indicate the method of valuing such assets.

Deposits and loans

34. The values to be recorded in the balance sheets of creditors and debtors are the amounts of money which the debtors are contractually obliged to repay the creditors under the terms of the deposits or loans when the deposits are liquidated or the loans mature.

Securities other than shares

35. As a general principle, short-term securities, and the corresponding liabilities, are to be valued at their face or par values, while long-term securities, and the corresponding liabilities, are to be valued at the current market prices of the securities when they are regularly traded on financial markets.

36. Short-term securities are bills on bonds with original maturities of up to one year, or in some countries of up to two years. When short-term securities are issued and traded at a discount and redeemed at par, it would be theoretically preferable to value them at the prices at which they are traded rather than their par values, but the differences between the two valuations must be very small for most short-term securities. Par values, which may be easier to obtain, are therefore acceptable in practice. On the other hand, the longer the original maturity of a security issued at a discount, the less acceptable it becomes to

value such a security at its face or par value. It is therefore recommended that the use of par values should be restricted to bills, issued at a discount, whose original maturities do not exceed three months or to short-term bills or bonds issued at par which carry a stated rate of interest.

37. Long-term securities should always be valued at their market prices, whether they are bonds on which regular payments of interest are paid or deep-discounted or zero-coupon bonds on which little or no interest is paid. Although the nominal liability of the issuer of a long-term security may be fixed in money terms, the market prices at which fixed interest securities are traded may vary considerably in response to variations in general market rates of interest. As the issuer of a long-term security usually has the opportunity to refinance his debt by repurchasing the security on the market, valuation at market prices is generally appropriate for both issuers and holders of long-term securities, especially financial transactor who actively manage their assets or liabilities. Deep discounted and zero-coupon bonds should always be valued in balance sheets at their current market values. When general market rates of interest fluctuate, the market value of such bonds may diverge significantly from their face or par values reduced by the remaining actual and/or imputed interest payments which are still due to be paid on them.

Shares and other equity

38. Shares or other corporate equities should be valued in balance sheets at their current market prices when they are regularly traded on stock exchanges or other organized financial markets. In the case of shares in corporations which are not quoted on stock exchanges or otherwise traded regularly, it is recommended that their values should be estimated using the prices of comparable quoted shares. For this purpose, reference may be made to the stock market values of the shares of similar kinds of corporations whose recent and expected earnings and dividends are also similar. However, it may be necessary to allow for the inferior marketability or liquidity of unquoted shares and to value them somewhat below their market equivalents.

39. Shares or other corporate equities are liabilities of corporations, and by valuing them at current market prices it is possible to arrive at the net worth of a corporation in the same way as for all other institutional units by subtracting the total value of all the liabilities of the corporation from the total value of its assets. Thus, even though a corporation is wholly owned by its shareholders collectively it is seen to have an independent net worth (which could be positive or negative) in addition to the value of the shareholders' equity. When a corporation is mostly, or wholly, owned by another corporation, or by a small group of shareholders, the assumption of an independent net worth may be questioned, however, as the parent corporation or group of shareholders effectively controls the amount of dividends paid out and thus fixes the amount of the earnings retained as savings. It may be appropriate therefore to assume that subsidiaries, especially wholly owned subsidiaries, do not in fact have an independent net worth which implies that the value to be placed on the shares or other equities of subsidiaries is equal to the total value of their assets minus the total value of their liabilities (excluding shares or other equities, of course). When there are minority shareholdings they should be valued at actual or estimated market prices and added to the value of other liabilities before deriving the value of parent corporation's shareholding. The procedure just described should be used to obtain the value in local currency of the shareholdings of foreign corporations in direct investment enterprises which are their subsidiaries.

40. The heading "shares and other equity" includes proprietors' net equity in quasi-corporations as well as shares or other equities in corporations. It is even more clear in the case of quasi-corporations than subsidiaries that they cannot have any net worth which is independent of their owners when they do not even exist as separate legal entities. The proprietors of quasi-corporations have complete control over the amounts of their earnings retained in such enterprises and over the amounts of capital invested or withdrawn. The value of proprietors' net equity in quasi-corporations is therefore equal to the total value of the enterprises' assets minus the total value of any liabilities directly attributable to the operations of the quasi-corporation, such as overdrafts on business bank accounts or trade credit received from suppliers. It follows that the net worth of a quasi-corporation must be zero, in much the same way as that of an unincorporated enterprise which is not treated as a quasi-corporation or separate institutional unit for which the proprietor's net equity does not appear explicitly in the System. It follows that the net worth of direct investment enterprises consisting of foreign branches of resident enterprises which are treated as quasi-corporations in the System, must also always be zero.

Insurance technical reserves

41. The valuation of insurance technical reserves, including pension funds does not raise any new issues as these reserves must be invested in various kinds of other assets such as land, buildings, financial assets and possibly stores of value such as works of art, precious metals, and so on. The assets of which the reserves are composed are valued at their actual or estimated current market prices.

CHANGES IN HOLDINGS OF ASSETS OR LIABILITIES BETWEEN BALANCE SHEETS

Introduction

42. This section is concerned with the recording of the values of changes in the holdings of assets or liabilities between two successive balance sheets. Most of these changes occur as a result of actual or imputed transactions between institutional units and these transactions are recorded in Capital Accounts and Financial Accounts of the System. The treatment of these transactions has already been described in the previous chapter and need not be elaborated further here. However, changes in an institutional unit's, or sector's, holdings of assets or liabilities may occur as a result of extraneous factors or events over which the units concerned have little or no control: for example, the destruction of tangible assets by acts of war or natural disasters. Changes in assets of this kind will be described as exogenous changes in asset holdings. They constitute a heterogeneous group but they all have in common the fact that they do not occur as a result of transactions recorded in the flow accounts of the System. Many of the changes do not take place as a result of deliberate decisions or actions taken by the units who own the assets. The remainder of this section is taken up with a description of the various kinds of changes which may be involved.

Exogenous changes in asset holdings

43. Exogenous changes in holdings of assets and liabilities may conveniently be divided between additions to assets (liabilities) and reductions in assets (liabilities).

(1) Additions to assets

44. Additions to assets may occur for several reasons such as the discovery of new natural resources, natural growth of forests, orchards, etc., or the creation of certain kinds of new intangible assets. Each is considered briefly below:

(a) The discovery of new natural resources

This category covers the discovery of new exploitable deposits of minerals, ores, fossil fuels or other subsoil assets whether as a result of systematic scientific exploitations or surveys or by chance. The increase in the value of already known deposits whose exploitation may have been previously uneconomic but which become profitable as a result of technological progress or relative price changes must be treated as a holding gain and not as the creation of a new asset.

(b) Natural growth

This item covers increases in the value of forests, plantations, orchards, vineyards, etc. due to natural growth. These assets are not treated as capital goods and the increase in their value due to natural growth is not included in the Capital Account under gross fixed capital formation.

(c) The creation of intellectual and similar property rights

The creation of new intellectual property rights such as patents, copyrights, etc. is not part of gross fixed capital formation and is not included in the Capital Account of the System. The net purchases of intangible assets which are recorded in the Financial Account refer to purchases and sales of already existing intangible assets. The creation of a new intellectual and similar property rights has therefore to be recorded under exogenous changes in asset holdings. As already mentioned, new patents, copyrights etc. should be valued on the basis of discounted value of the future returns, including royalties, which may be expected to accrue to the owner, although this value may be difficult to estimate in practice.

(d) Seizures of assets

Governments may seize, or confiscate, the tangible, intangible or financial assets of other institutional units, including non-resident units. This heading also covers seizures of assets by governments or other institutional units which contravene national, or international, law. Such seizures are not capital transfers and are not recorded in the Capital Account.

(2) Reductions in assets

45. Reductions in assets may occur for a variety of reasons such as the depletion of deposits or forests or the destruction of assets as a result of military action or natural disasters. Each is considered briefly below.

(a) The depletion of natural deposits

This category covers the reduction in the value of deposits of minerals, ores, fossil fuels or other subsoil assets as a result of the physical removal and using up of the assets. The depletion of non-reproducible assets of this kind is not recorded in the Capital Account of the System.

(b) The depletion of forests, etc.

This category covers the reduction in the value of forests, plantations, orchards, vineyards, etc. as a result of forest clearance.

(c) The accidental destruction of tangible assets

It should be noted that capital consumption in respect of machinery, equipment and structures is intended to cover normal accidental damage for which insurance can be taken out. The accidental destruction of tangible assets included under the present heading is therefore restricted to damage to producers' goods which is not insurable or damage to other assets for which capital consumption is not calculated. The following types of destruction may be noted:

(i) the destruction of assets by acts of war, riots, earthquakes, etc., not covered by insurance;

(ii) deterioration in the quality of land caused by flooding, erosion, or other disasters.

(d) Losses of assets seized by others

This category covers losses of tangible, intangible or financial assets which are seized, or confiscated, by other units, whether legally or illegally.

(3) Changes in asset holdings due to reclassification

46. The composition of a group of institutional units, or sector, may change between the beginning and the end of the accounting period because individual units are reclassified from one sector to another during the course of the accounting period. Resulting changes in the coverage of the assets of the sector between the opening and closing balance sheets should be recorded under exogenous changes in asset holdings.

REVALUATIONS AND HOLDING GAINS AND LOSSES

Introduction

47. As explained earlier, the change in the value of an institutional unit's or sector's, holding of an individual asset or liability between the opening and closing balance can be decomposed into two elements:

(a) Changes due to changes in quantity, or amount, of the asset held as a result of transactions recorded in the Capital and Financial Accounts or as a result of exogenous changes in the quantity of asset of the kind described in the previous section; and

(b) Changes due to changes in the price of the asset, which automatically give rise to nominal holding gains or losses on the asset at whatever time they occur within the accounting period.

48. It must be emphasized that nominal holding gains or losses are not to be construed simply as revaluation adjustments which are needed to obtain a complete accounting reconciliation between the values recorded in the opening and closing balance sheets. They represent changes in the monetary value of the asset or liabilities held by institutional units which affect the wealth of those units and which may have a considerable impact on their economic behaviour. They are important economic variables in their own right and should not be relegated to the role of mere adjustment or reconciliation items. Moreover, holding gains and losses occur even when the general price level is stable because of changes in relative prices. In fact, the System also requires real holding gains due to changes in relative prices to be calculated but it is necessary to start by considering the derivation and calculation of nominal holding gains.

The decomposition of changes in values between successive balance sheets

49. In order to calculate the total nominal holding gains accruing on an individual asset within a given accounting period, it is necessary to subtract the total value of the transactions and other changes in the quantity of the asset which occurred within the period from the difference between the values of that asset recorded in the closing and opening balance sheets. It should be noted that the total value of the holding gains accruing cannot be calculated from balance sheet data alone and a formal demonstration of this is given in this section. The revaluation accounts of the System are not simply concerned with revaluing the assets or liabilities which appear in the opening and closing balance sheets. They must also take account of revaluations of other assets which may be acquired or disposed of within the accounting period and which do not appear in one or other, or possibly both, of the balance sheets.

50. It would be very difficult to calculate the total holding gains or losses on an asset directly as this would mean recording every individual change in the stock of the asset as it occurs throughout the period and also the price of the asset prevailing at the times the changes occur. However, the necessary information is implicitly contained in the value the transactions and other changes in the stock of the asset which take place within the accounting period and it is possible to obtain the value of the holding gains residually by subtracting the total value of the transactions and other changes from the difference between the closing and opening balance sheet values, as stated above. The remainder of this section is devoted to a simple algebraic decomposition of the difference between successive balance sheet values which also shows how the total nominal holding gains accruing within the period relate to estimates of such gains based on balance sheet data alone.

51. Consider a single asset, the value of which is recorded in the opening and closing balance sheet of an institutional unit or sector. The accounting period between the two balance sheet dates should be envisaged as being divided into n small intervals of time (individual days or weeks).

Let qo = the quantity of a given asset in the opening balance sheet

qn = the quantity of the same asset in the closing balance sheet

di = the change in the quantity of the asset occurring within time interval i: $(i = 1, 2, \ldots n)$

pi = the price of the asset in time interval i

It follows from the definition of the terms that:

$$qn = qo + \sum_{i=1}^{n} di \tag{1}$$

52. The total value of the changes in the quantities of the asset which occur within the accounting period, whether as a result of transactions or for other reasons, is given $\sum_{i=1}^{n} pidi$. Thus, the change in the value of the asset between the opening and closing balance sheets less the value of the changes is given by:

$$pnqn - poqo - \sum_{i} pidi = (pn-po)qn - \sum_{i} (pi-po)di \tag{2}$$

given that $poqo = poqn - po \sum di$

It can be seen by inspection of the term on the right hand side of (2) that this expression is a comprehensive measure of all the nominal holding gains which accrue on the asset throughout the accounting period as a whole. However, there is an alternative, and equally valid, way of expressing the holding gains as follows:

$$pnqn - poqo - \sum_{i} pidi = (pn-po)qo + \sum_{i} (pn-pi)di \tag{3}$$

given that $pnqn = pnqo + pn \sum_{i} di$

By adding equations (2) and (3) together and dividing by 2 we obtain:

$$pnqn - poqo - \sum_{i} pidi = (pn-po)\overline{q} + \sum_{i} (\overline{p}-pi)di \tag{4}$$

where $\overline{q} = 1/2(qo+qn)$

- and $\overline{p} = 1/2(po+pn)$

It can be seen from (4) that the value of the total nominal holding gains accruing - that is, the difference between the change in the balance sheet values and the value of the transactions on other changes occurring within the period can itself be split into two components, namely:

(a) $(pn-po)\overline{q}$ which is equal to the nominal holding gain between the beginning and the end of the period on the arithmetic mean value of the quantities of the asset shown in the opening and closing balance sheets, and

(b) $\sum(\overline{p}-pi)di$ which is equal to the sum of the changes in the assets which occur valued at the difference between the arithmetic mean of the opening and closing prices and the price at the time the change, or transaction, actually takes place. This term will be negligible, or zero, if prices rise, or fall at a steady rate and the quantities of the asset held also rise, or fall, at a steady rate. On the other hand, this term may be significant if the quantities of the asset held fluctuate during the period while prices are rising (or falling).

53. Thus, the nominal holding gain on the average of the quantities shown in the opening and closing balance sheets may be expected to provide a satisfactory approximation to the total holding gains accruing during the period, including holding gains on assets acquired or disposed of during the period, provided that the quantity of the asset held does not fluctuate much during the period. The consequences of fluctuations in quantities depend on the nature of the fluctuations.

For example, if prices are rising steadily and net additions to the holdings of the asset are greater in the first part of the accounting period than in the second, the term $\sum_i (p-pi)di$ will be positive. Thus, the nominal holding gain on the average of the opening and closing quantities will tend to understate the true nominal holding gains accruing because the average stock of the asset actually held over the period as a whole will be greater than the arithmetic mean of the opening and closing figures.

54. It is not sufficient, therefore, to know the prices and quantities of the assets shown in the opening and closing balance sheets in order to be able to calculate the total value of the nominal holding gains accruing on those assets during the accounting period. In order to calculate the nominal gains directly from data on the stocks of the asset it would be necessary to record all changes in the stock of the asset as they occur and to record the prices at which they take place, and only in the special case in which movements of prices and quantities take place very smoothly throughout the accounting period is it possible to dispense with this information. This conclusion, is, of course, essentially the same as that reached earlier with reference to the valuation of changes in stocks of inputs and outputs held by producers, and it is shown in Chapter < > that the correct measurement of the value of changes in stocks, and hence of the nominal holding gains accruing on stocks, requires information on all movements in stocks and on the prices at which they take place, information on the opening and closing levels of stocks being generally insufficient for this purpose.

55. There are many special cases which could be enumerated but which are not worth spelling out in detail here. However, it is worth noting that nominal holding gains may accrue in respect of an asset even though it does not appear in either the opening or the closing balance sheets. In such a case, if transactions take place in that asset within the accounting period it follows that the amounts of the asset held must have risen and then fallen back to zero over the period as a whole so that the term $\sum(p-pi)di$ is bound to be positive, assuming prices rise monotonically. Nominal holding gains must have not only accrued but have been realized.

56. It can be concluded from this section that the appropriate way in which to calculate the nominal holding gains accruing within a given period is to obtain them residually by subtracting the values of the transactions or other changes in the asset concerned from the difference between the closing and opening balance sheet values. While it is also possible to estimate the nominal holding gains or losses directly from balance sheet data alone, such estimates may be expected to yield close approximations to the correct figures only when the prices and quantities of the assets held change fairly smoothly over time.

57. The various accounting relationships linking the values of the assets or liabilities in opening and closing balance sheets may now be summarized as follows:

The value of the asset (liability) in the opening balance sheet

+ the value of changes in the quantity of the asset (liability) held due to actual or imputed transactions as recorded in the Capital Account and the Financial Account

+ the value of exogenous changes in the quantity of the asset (liability) held due to extraneous factors or events other than transactions

+ the value of all the nominal holding gains or losses accruing within the accounting period as a whole

= the value of the asset (liability) in the closing balance sheet.

58. The accounting identity holds because nominal holding gains or losses can be derived residually, as already explained.

Real holding gains and losses

59. The System also requires real holding gains and losses to be calculated as these are likely to have a greater impact on the economic behavior of institutional units than nominal gains and losses. Although real holding gains must be expressed in monetary terms, they need to be measured with reference to a numeraire other than money. It is appropriate in national accounts to choose a comprehensive basket of goods and services as the numeraire and it is proposed to use the set of goods and services which make up Gross Domestic Expenditure - that is, final consumption expenditures plus gross capital formation - within the accounting period in question. The numeraire can be considered as a composite product whose characteristics are defined by the proportions in which the various goods and services of which it is composed are mixed. These proportions remain fixed although the absolute quantities can be scaled up or down in equal proportions as preferred without changing the nature of the numeraire. It is necessary, however, to choose some units in which to express the numeraire itself and in order to have reasonably small and manageable units it is convenient to assume that all the goods and services which make up Gross Domestic Expenditure are perfectly divisible so that one unit of the numeraire itself could be envisaged as being made up of the average quantities of final consumption and capital goods and services available per person, or per household, as preferred.

60. Given a complete set of relative prices, including the price of the asset for which the real holding gain or loss is to be calculated, it is possible to establish how many units of the numeraire (which include fractions of the numeraire unit) are needed in order to be able to exchange them at those prices for one unit of the asset. This is, in effect, the "price" of the asset expressed in terms of the numeraire instead of money.

61. Then relative prices change during the course of an accounting period, it is possible to compare the numeraire price at the end of the period with the numeraire price at the beginning of the period. The real holding gain (or loss) on a unit of the asset held throughout the accounting period is then equal to the increase (or decrease) in the numeraire price of the asset. The numeraire price shows the rate at which the asset can be exchanged for the composite product of which the numeraire is composed: it shows the "real" purchasing power which the asset commands over the set of goods and services which make up the numeraire. The holder of an asset on which a real holding gain, as defined above, occurs must be better off at the end of the accounting period than at the beginning because simply by holding the asset over the period he is able to exchange it for more of all the goods and services which make up the composite product at the end of the period than at the beginning. Real holding gains thus depend only on changes in relative prices and not on changes in absolute prices - that is, they do not depend on changes in the general price level or rate of inflation.

62. Having introduced the concept of a numeraire, however, it can also be used to measure inflation. The rate of inflation can be equated with the rate of increase in the amount of money which is needed to buy one unit of the numeraire over a given period of time, and it is commonly measured this way in practice. It can be seen, therefore, that measures of real holding gains, like measures of inflation, cannot be unique as both depend on the choice of numeraire, and somewhat different results are inevitably obtained by using different baskets, or sets, of goods and services as the numeraire. This problem is familiar to compilers of price and volume indices, and is often referred to simply as the index number problem.

63. The nominal holding gain or loss on an asset, calculated in the way described in the previous section, consists of two elements. One element is the real holding gain or loss over the same period: the remainder will be described as the "neutral" holding gain. A "neutral" holding gain, or loss, on an asset is defined as the addition to, or subtraction from, the monetary value of an asset which is needed in order to ensure that the asset can be exchanged at the prices at the end of the period for the same amount of the composite product, or numeraire, as could be obtained by exchanging it at the beginning of the period. In other words, the neutral holding gain is equal to the change in the monetary value of an asset which is needed to preserve its exchange value against other goods and services. It follows that to the extent that the actual nominal holding gain on an asset exceeds, or falls below, the neutral holding gain, a real holding gain or loss must have accrued. Indeed, the real holding gain or loss is obtained residually as the difference between the nominal holding gain and the neutral holding gain.

64. The neutral holding gain, or loss, as a percentage of the value of the asset at the start of the period must be equal to the percentage rate of inflation (or deflation) between the beginning and the end of the period. Using the set of goods and services contained in Gross Domestic Expenditures as the numeraire the rate of inflation (or deflation) is measured by the price index which uses the current values of Gross Domestic Expenditures as expenditure weights. In practice, such an index is not always available, in which case the closest possible approximation should be used instead. The neutral holding gains on different kinds of assets are all equal in percentage terms, as they are all calculated by applying the same general rate of price inflation to the values of the various assets.

65. In principle, neutral holding gains should be calculated in respect of all assets held at any time during the accounting period and not simply for those assets which appear in the opening and closing balance sheets. Nominal holding gains include those accruing on assets acquired, or disposed of, during the accounting period so that the corresponding neutral gains should also be calculated on those assets if the resulting real holding gains are to be measured correctly. In practice, however, estimates of the neutral holding gains can only be made from the information contained in the opening and closing balance sheets. In general, the quantity of an asset held is likely to vary between the beginning and the end of the period in ways which are not known, but for purposes of calculating the neutral holding gains, it may be assumed that the transition from the initial quantity to the final quantity proceeds in a linear fashion in which case the average quantity held throughout the period is given by the simple arithmetic mean of the quantities recorded in the opening and closing balance sheets. Given an assumption of this kind, together with a similar assumption that the rate of inflation also proceeds at a steady rate during the period, it is possible to obtain estimates of the value of the neutral holding gains which are acceptable for purposes of the System. In practice, such estimates may be obtained quite simply

by taking the average of the values of the asset in question in the opening and closing balance sheets and multiplying this average by the average percentage change between the beginning and end of the period in the price index for the numeraire. After the neutral holding gains have been estimated in this way, the values of the real holding gains or losses on the assets in question may be derived residually by subtracting the neutral gains from the actual nominal gains, or losses.

66. Unlike nominal and real holding gains, neutral holding gains have limited economic significance, or analytic interest, in themselves. They can perhaps best be interpreted as little more than accounting devices which are needed in order to be able to arrive at other measures, in particular real holding gains and losses and changes in real net worth. It is nevertheless useful to consider their properties briefly. First, if there is no inflation at all, as measured by the price index for Gross Domestic Expenditures, the neutral holding gains are automatically zero for all assets. In this case, the real holding gains must coincide with the corresponding nominal gains as both are generated by the same changes in relative prices. In practice, quite considerable real holding gains may accrue even when the general price level is stable, the most common example being real holding gains on land whose price often tends to rise relatively to the prices of goods and services over the long run because its supply is fixed, even when there is no tendency for prices in general to rise.

67. Second, it should be noted that neutral and real holding gains, or losses, are equal but opposite in sign in the case of assets whose prices are fixed in monetary terms, such as domestic currency, deposits or loans. As the prices of such assets in monetary terms do not change, the nominal holding gains must always be zero. However, the neutral holding gains which are needed to preserve the purchasing power of such assets must be positive in an inflationary situation in the same way as for all other assets. It follows that the real holdings must be negative and equal in absolute value to the neutral gains.

68. Holding gains on liabilities which are fixed in monetary terms must be equal to those on their asset counterparts but opposite in sign algebraically. Whereas the nominal holding gains on such liabilities are zero, the neutral holding gains are negative while the real holding gains are positive. As the real holding gain which accrues on the liability of a debtor because of inflation is equal to the real holding loss which accrues on the asset of the creditor, there is an implicit transfer from the creditor to the debtor equal to the value of the creditor's real holding loss. These are not recognized as imputed transfers in the System, however, although users may wish to recognize them for analytical purposes. It is, of course, precisely because of these implicit transfers from creditors to debtors during inflation that creditors demand higher payments of nominal interest in compensation for their real holding losses.

69. In a situation of persistent inflation, which does not necessarily have to be high inflation, the neutral holding gains which are needed to preserve the purchasing power, or exchange value of an asset against the numeraire, are systematic and recurrent. In the case of assets whose values are not fixed in monetary terms, there will also tend to be persistent and significant nominal holding gains which can be expected to be sufficient to cover the neutral holding gains in general, even though substantial real holding gains or losses may accrue on particular assets. There are no nominal gains, however, on holdings of currency, deposits and loans on which real holding losses inevitably accrue, and

are expected to continue to accrue. Because of the certainty with which these real holding losses are expected to accrue they have a considerable impact on the behaviour of creditors and debtors, and for this reason it is recommended that when there is persistent inflation the real holding losses and gains on assets and liabilities which are fixed in money terms should be shown as memorandum items to the income accounts, even if it is not possible to show the real holding gains and losses on all types of assets. It is necessary to show such memorandum items when the nominal interest payments paid in an inflationary situation have been raised in order to offset the real holding losses incurred by creditors.

Revaluations

70. The revaluations which give rise to nominal holding gains or losses may be attributable to three different kinds of changes, namely:

(1) Changes in the market prices of goods, services, tangible, intangible and financial assets;

(2) Changes in market rates of interest;

(3) Changes in exchange rates, whether managed or floating.

71. As already stated, in the case of a bill or bond issued at a discount and redeemable at par, the gradual increase in the value of the bill or bond from its issue price to its par value is treated as an accrual of interest and not as a nominal holding gain. The price of a deep-discounted or zero-coupon bond with a maturity of several years may also fluctuate during that period as a result of variations market interest rates, in which case such price fluctuations give rise to nominal holding gains in the same way as for ordinary bonds. The nominal holding gain on a deep-discounted or zero-coupon bond is equal to the change in its market price between the beginning and the end of the period less the imputed interest on the bond, calculated in the way described in Chapter < >.

72. Other assets whose prices are based on the discounted values of the expected future receipts from those assets may be sensitive to interest rate changes even if there is no change in the expected future receipts themselves; for example, the value of subsoil assets or patents. The prices of such assets may be volatile anyway because of new discoveries, changes in technology or other changes which can affect expected future receipts.

73. Assets which are denominated in foreign currencies should normally be converted into domestic currency for balance sheet purposes using the mid-point of the buying and selling exchange rate. However, if there is a specific rate applying to transactions in that particular asset, that rate should be used instead. Otherwise, in a multiple exchange rate system it may be necessary to use an average, or unitary, rate. For balance sheet purposes, the rates selected are those prevailing on the day the balance sheet is compiled. Thus, changes in exchange rates between the dates of the opening and closing balance sheets give rise to nominal gains in terms of values in domestic currency. However, as emphasized earlier, it is often quite inappropriate to try to estimate the nominal holding gains accruing within an accounting period from data contained in the opening and closing balance sheets alone. Data on all the transactions or other changes in asset holdings throughout the period are needed in order to derive the nominal holding gains residually from the difference between the change in the

balance sheets values and the value of the transactions or other changes in asset holdings. In the case of nominal holding gains arising out of exchange rate fluctuations, approximate measures of holding gains calculated directly from the opening and closing balance sheets are likely to be inadequate.

Changes in real net worth

74. The calculation of the change in the real net worth between the beginning and the end of the accounting period for an institutional unit, a sector or the economy as a whole may be regarded as the culmination, or end point, of the entire system of accounts, although this does not imply that it is the ultimate objective, or purpose, of the System as a whole. The change in real net worth measures the change in the real wealth - that is, the command over real resources - of the unit or sector concerned over the accounting period as a whole and, as such, encapsulates the net effect of all the economic activities in which the unit, or group of units, has been engaged.

75. The change in real net worth can be derived directly by adjusting the net worth in the opening and closing balance sheets for changes between the beginning and end of the period in their purchasing power over the composite product used as numeraire. One way to do this is to follow a similar procedure to that recommended earlier for the estimation of neutral holding gains on individual assets and liabilities. The arithmetic average of the opening and closing net worth may be multiplied by the percentage increase in the price index for Gross Domestic Expenditure to obtain an estimate of the neutral holding gain for net worth itself. This neutral holding should then be subtracted from the actual change in net worth to obtain the change in real net worth. This procedure should be followed in order to ensure consistency with the estimates for the real holding gains on individual assets and liabilities.

76. The implication of this procedure is that the general price level for Gross Domestic Expenditures at which the change in real net worth itself is evaluated is given by the set of prices which are simple averages of the prices at the start of the accounting period and the corresponding prices at the end of the period. The use of these prices to measure the change in real net worth is obviously consistent with the transactions recorded in the flow accounts. Other prices could possibly be used, such as the average prices over the period as a whole or the prices prevailing half way through the period, but the differences would tend to be negligible anyway in relation to the potential errors involved in estimating a balancing item as complex as net worth.

77. The change in real net worth can also be considered as the sum of all the real changes in the individual assets which make up the balance sheet less the real changes in the liabilities. The real changes in the individual items in the balance sheet can be decomposed into three elements; namely,

(1) changes in holdings of assets or liabilities due to transactions;

(2) exogenous changes in holdings of assets and liabilities;

(3) real holding gains, or losses, on the assets or liabilities.

78. Provided that the neutral holding gains are calculated consistently for net worth as a whole and for the individual assets and liabilities from which it is derived, the overall change in real net worth can be decomposed exactly into its various components and such a decomposition is given for the balance sheets of the System.

CHAPTER XII: PRICE AND VOLUME MEASURES*

Introduction

1. The System provides a framework within which an integrated set of price and volume measures can be compiled which are conceptually consistent and analytically useful. As in the main accounts at current prices, the primary objective is not so much to provide global measures of inflation or growth for a few main aggregates such as GDP (however interesting and important these may be), but to assemble a set of interdependent measures which make it possible to carry out systematic and detailed analyses of the processes of economic growth or inflation and their determinants. It is important, for example, to be able to track the consequences of increased import prices on the general price level or to estimate the effects of higher rates of investment on the rate of economic growth, and for purposes such as these the relevant price and volume measures needed to be embedded within the kind of overall accounting framework which the system provides.

2. A second advantage gained by compiling price and volume measures within the framework of the System is that it provides a check on the numerical consistency and reliability of the entire set of measures as a whole. This is important because the compilation of price and volume measures for every flow of goods and services which is included in the System is considerably more difficult than compiling independent, or free-standing indices, such as consumer price indices or industrial production indices which do not have to cover some of the most difficult flows such as non-market goods and services.

3. Another advantage of compiling price and volume measures within the framework of the System is that it is possible to derive price and volume measures for certain important items which are defined within the System itself. The main example is the measurement of gross value added at constant prices by subtracting intermediate consumption at constant prices from output at constant prices, the so-called double deflation method. Double deflation has to be used not merely to measure real gross value added at the level of an individual enterprise, industry or sector but also to obtain price and volume measures for GDP as a whole. Even when calculated from the expenditure side GDP at constant prices has to be obtained by subtracting imports at constant prices from total final expenditures at constant prices. The use of this method implies that the price and volume measures for the various components which are used to calculate GDP must be capable of being added and subtracted in the same way as their counterparts at current prices. This can pose a serious dilemma in practice as certain price and quantity measures which have other highly desirable properties cannot be added and subtracted in this way because they are not "additively consistent".

4. Although most price and volume measures were originally intended to measure changes in prices and volume between different periods of time, it is also possible to use them to compare levels of prices and volumes between different geographical areas, such as regions or countries, in the same period of time. Most of the standard theory on index numbers can be applied equally to comparisons over time or to comparisons over space. International comparisons of prices and volumes are

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the Author.

widely used in order to be able to compare standards of living, levels of economic development or levels of productivity in different countries and also to compare the price levels in different countries when prices are converted at exchange rates. Such comparisons are important both for purposes of economic analysis and policy-making so that international comparisons of prices and volumes are considered to be an integral part of the System. International comparisons raise some additional methodological questions which are dealt with in a separate section below.

5. Finally by way of introduction, it may be noted that the theory and methodology of index numbers is a major subject in its own right on which there is an extensive literature. Most basic index number theory is quite general in its application and no attempt will be made to summarize it in this chapter, as reference may easily be made to the standard literature which exists on the subject. The properties and behaviour of the most common and widely used index numbers - in particular, Laspeyres and Paasche price and volume indices, and Fisher's price and volume indices - will be treated as already understood. These indices are described in detail in all the standard texts on index numbers, and also in the Manual on National Accounts at Constant Prices. Index numbers problems are discussed in this chapter only in so far as they are relevant to some specific issue of national accounting.

6. Unless stated to the contrary, the discussion of this chapter is general to changes over time, rather than differences between locations, as this both simplifies and shortens the explanations. This is purely for convenience and it should not be interpreted as implying that the discussion applies only to intertemporal comparisons. As already stated, most of theory and methodology of index numbers can be applied interchangeably to intertemporal or international comparisons.

FLOWS OF GOODS AND SERVICES

7. A basic distinction may be drawn between these entries in the accounts which represent flows of goods and services - output, intermediate and final consumption, capital formation, exports, imports, etc. - and those which represent other kinds of flows such as income flows, transfers, purchases and sales of financial assets, balancing items, etc. It is necessary to consider first the compilation of the price and volume measure for flows of goods and services in the System and these are explained in this section. A later section then considers the use of price indices for other purposes, such as the deflation of income flows to obtain measures of real income.

Concepts and terminology

8. For an individual good or service there is a fundamental identity:

value = price x quantity

That is, the value of the flow (or stock) of an individual good or service, is equal to the number of units of that good or service multiplied by the price per unit. Values have quite a different dimension from prices: thus, the values of different goods and services can be added together whereas it is meaningless to try to add together the prices of different products. The term "value" is therefore never used loosely as a synonym for "price" in this Manual.

9. In the case of an aggregate flow (or stock) consisting of several different goods and services there is a corresponding identity which is written as:

value index = price index x volume index

This identity is by no means so self-evident as the corresponding identity for a single good or service, but the identity is taken as axiomatic in a national accounts context. The value index is to be understood as the proportionate change in the value of an aggregate at current prices between the two periods. The above identity implies that, in principle, if the current values are known it is necessary to calculate only one out of the price and volume indices as the other can be derived indirectly from the identity. The price or volume index which is calculated directly will be called the "direct index" while the one derived indirectly from the identity will be called the "implicit index".

10. It is a well-known property of Laspeyres and Paasche indices that if the direct index is Laspeyres type the corresponding implicit index is Paasche type, and vice versa. Like most indices, Laspeyres and Paasche indices do not satisfy Fisher's "factor reversal" test. However, the fact that the implicit index may be of a different type from the direct index is not considered to be a disadvantage, or at least a serious disadvantage, by most users of national accounts. A situation which occurs frequently in practice is for the direct index to be a Laspeyres type volumes index, in which case the implicit price index is Paasche type, and it is common to describe such indices as "implicit price deflators" rather than "implicit price indices".

11. The term "volume index" is used in preference to "quantity index" because the term "quantity index" is usually used to refer to an index in which goods and services are measured in terms of crude quantity units - numbers, tons, meters, etc. - which do not differentiate between goods or services of different quality. For example, it would be possible (although economically meaningless) to construct output indices for the vehicle industry based simply on changes in the numbers of vehicles produced, without distinguishing between vehicles of different quality. The term "volume index" is used in preference to "quantity index" simply to underline the fact that, from an economic point of view, it is quite inadequate to calculate volume changes on the basis of a simple enumeration of physical quantities when the goods and services are not homogeneous. At the level of a single good or service no distinction can be drawn between quantity and volume, but for a group of similar goods, such as vehicles, whose numbers can be counted but whose quantities may vary considerably, the volume index has to capture not only changes in the numbers of units but also any changes in the average quality of those units as a result of a shift in the relative importance of different qualities within the group.

12. It is common in national accounts to show time series of flows of goods and services at the constant prices of some base year. Such data are very convenient for many kinds of economic and econometric analysis and are widely used. If a time series at constant prices is converted from monetary values to indices by dividing through by the value of the item in the base year, a time series of Laspeyres volume indices is obtained. Thus, a time series at constant prices is essentially an alternative way of presenting a time series of Laspeyres volume indices. The proportionate volume changes from year to year are identical for both series. The term "volume measure" is used here to embrace both time series of monetary values expressed at the constant prices of some base year and volume indices based

on 100. Many volume series in national accounts are not actually expressed in index number form, and for this reason the more general term "volume measure" is needed.

The treatment of different qualities of goods and services

13. It is necessary to distinguish between the treatment of different qualities of goods and services existing at a given moment of time and the treatment of changes in the quality of a given type of good or service, over time. For purposes of exposition, it is convenient to assume initially that there are no changes in quality over time, and no new or disappearing products. Even when qualities remain unchanged over time, the appropriate treatment of different qualities of the same general kinds of goods and services raises some complex issues.

14. In general, most types of goods or services, whether simple food products such as potatoes or complex electronic products such as calculators, are available on the market in many different versions whose physical characteristics differ from one version to another. For example, potatoes may be old or new, red or white, washed or unwashed, loose or repacked, graded or ungraded, and so on. From an economic point of view unwashed, loose, old red potatoes are a different good from washed, repacked, new white potatoes. Consumers recognize and appreciate the difference and are prepared to pay different prices.

15. The expression "different qualities of a good" is used to cover sets of goods which must be distinguished from each other from an economic point of view but which are sufficiently similar to each other to be described by the same general name, such as potato. Different prices are charged for different qualities of the same kinds of goods in much the same way that different prices are charged for goods which are generically different from each other and described by different names, such as potatoes and calculators.

16. When a market is in equilibrium, economic theory shows that the relative prices charged for different goods, or different qualities of the same genus of good, should reflect both their marginal rates of substitution and their marginal rates of transformation. Marginal rates of substitution reflect the rates at which purchasers, or users, are prepared to exchange different goods, or different qualities, for each other without making themselves either better or worse off; in other words, the marginal rates of substitution reflect the relative use values of the goods or services in question. Marginal rates of transformation reflect the rates at which producers can switch from the production of one good or quality to another while keeping their total costs of production unchanged; in other words, they reflect the relative costs of producing different goods or qualities. When a market is not in equilibrium, however, relative use values may diverge from relative costs of production, although market forces should tend to reduce such divergences over time.

17. Different qualities of goods have to be treated in the same way as completely different kinds of goods. The fact that they may be described as "different qualities" is simply to economize on terminology to avoid having to introduce, or invent, new names for goods which may be only slightly different from each other. Nevertheless, different qualities sold at different prices reflect differing use values and resource costs and are therefore economically different from each other. Thus, if there is an increase in the number of higher quality, and consequently higher priced, goods counterbalanced by an equal reduction in the

number of lower quality and lower price goods, the resulting increase in the total monetary value of the units bought and sold must be treated as an increase in volume and not as an increase in average prices. The associated price index should record no increase in price so long as the prices of the individual qualities themselves remain unchanged.

18. Differences in quality which are attributable to differences in the physical characteristics of the goods or services concerned are easily recognized, but not all differences in quality are directly observable in this way. There are other factors which can give rise to differences in quality and it is necessary to indicate the most important, and the most common, of these. Many of these differences can be traced to the fact that goods or services delivered in different locations, or at different times, must be treated as different qualities even if they are otherwise physically identical. These differences stem from the fact that purchasers or consumers situated in one location may attach very different levels of utility or satisfaction to a particular kind of good or service than purchasers in other locations, while the costs of delivering goods or services in different locations may also vary greatly. In many cases, transporting a good to a location in which it is in much greater demand is an important process of production in itself which implies that the good in question must be transformed into at least a higher quality good if not a different good. For example, producers' and purchasers' prices as defined in the System do not normally refer to the same goods but to different qualities of goods.

19. Similarly, goods or services bought and sold at different times of the day or at different periods of the year must be treated as different qualities even if they are otherwise identical. For example, electricity or transport provided at peak times must be treated as being of higher quality than the same amount of electricity or transport provided at off-peak times. The fact that peaks exist shows that purchasers or users attach greater utility to the services at these times, while the marginal costs of production are clearly higher at peak times. The different prices or rates charged at peak and off-peak times are the direct consequence of these differences in quality. Similarly, fruit and vegetables supplied out of season must be treated as higher qualities than the same fruit and vegetables in season which are cheaper to produce and of which consumers may be surfeited.

20. Apart from differences in location or timing there are other factors which may contribute to quality differences. For example, the conditions of sale, or circumstances or environment in which the goods or services are supplied or delivered can make an important contribution to differences in quality. A restaurant meal provided with more attentive service in more luxurious or pleasant surroundings is a higher quality meal than exactly the same food and drink provided with less service in a less pleasant environment. A durable good sold with a guarantee, or free after-sales service, is higher quality than the same good sold without guarantee or service. Even the same goods or services sold by different kinds of retailers, such as local shops, specialist shops, department stores or supermarkets must be treated as different qualities. Alternatively, the goods may be envisaged as being parts of different composite products which incorporate different amounts, or kinds, of retail services. Thus, purchasers in large supermarkets may have to find, select and transport their own purchases to check-outs, but they are also offered the advantage of greater choice and the opportunity to reduce the amount of time spent shopping by making purchases in bulk. All these kinds of factors introduce qualitative differences.

21. In general, therefore, it is necessary to pay attention to differences in the situation, or conditions, in which goods and services are supplied, as prima facie these may all be expected to introduce qualitative differences into the goods or services supplied. In economic theory it is generally assumed that whenever a difference in price is found between two goods and services which appear to be physically identical there must be some other factor, such as location, timing, conditions of sale, etc. which is introducing a difference in quality. Otherwise, it can be agreed that the difference could not persist, as rational purchasers would always buy lower priced items and no sales would take place at higher prices. In general, such an argument would appear to be valid and, by and large, it is accepted in the System. In other words, observed differences in prices at the same moment of time are taken as prima facie evidence that the goods or services concerned must be qualitatively different in some respect or other.

22. Nevertheless, it must be questioned whether the argument that an observed price difference automatically implies a corresponding difference in quality is universally applicable. The argument rests on two tacit assumptions: namely, that purchasers are well informed and that they are free to choose between goods and services offered at different prices. One or other of these assumptions may well be invalid in practice.

23. First, purchasers may not be properly informed about existing price differences and may therefore inadvertently buy at higher prices. While they may be expected to search out for the lowest prices, costs are incurred in the process. The potential costs incurred by searching for outlets in which the same goods and services are sold at lower prices may be greater than the potential savings on expenditures, so that a rational purchaser may be prepared to tolerate the fact that he may not be buying at the lowest price. A situation in which the individual buyer or seller negotiate, or bargain over, the price is another example in which the purchaser may inadvertently buy at a higher price than may be found elsewhere. It is clear that when the same seller sells exactly the same good to different buyers at different prices simply because of differences in the buyers' bargaining skills or information, the goods sold at different prices cannot be treated as different qualities. On the other hand, the difference between the average price of a good purchased in a market or bazaar in which individual purchasers bargain over the price and the price of the same good sold in a different type of retail outlet, such as a department store, should normally be treated as reflecting differences in quality attributable to the differing conditions under which the goods are sold.

24. Second, purchasers may not be free to choose the price at which they purchase because the seller may be in a position to charge different prices to different categories of purchaser for identical goods and services sold under exactly the same circumstances - in other words, to practise price discrimination. Sellers have an economic incentive to practise price discrimination as it offers then the possibility to increase their revenues and profits. However, it is usually difficult or impossible to discriminate when purchasers can retrade amongst themselves; that is, when purchasers buying at the lowest prices can resell the goods to other purchasers. While most goods can be retraded, it is usually impossible to retrade services, and for this reason price discrimination is extensively practised in industries such as transportation, health, education and business services in most countries. Lower prices are typically charged to purchasers with low incomes, or low average incomes, such as pensioners or students. When governments practise, or condone the practice of, price

discrimination it is usually for welfare reasons, but market producers may also discriminate in favour of households with low incomes as this may enable them to increase their revenues. In such cases, it is important to ascertain whether there are any quality differences associated with the lower prices. For example, if pensioners, students or school children are charged lower fares for travelling on trains or buses, at whatever time they choose to travel, this must be treated as pure price discrimination. However, if they are charged lower fares only when they travel at certain times, typically off-peak times, it must be assumed that they are being offered lower quality travel.

25. Third, sellers may be unable to buy as much as they would like at a lower price because there is insufficient supply available at that price. This situation typically occurs when there are two parallel markets in which the same goods and services are sold. There may be a primary, or official, market in which the quantities sold, and the prices at which they are sold, are subject to government or official control, while there may be a secondary market - a free market or unofficial market - whose existence may or may not be recognized officially. If the quantities available at the price set in the official market are limited there may be excess demand at that price so that supplies have to be allocated by rationing or some form of queuing. As a result, the price on the secondary or unofficial market will tend to be higher. It is also possible, but less likely, that lower prices are charged on the secondary or unofficial market, perhaps because the payment of taxes on products can be evaded on such a market.

26. For the three reasons just given, namely purchasers' lack of information or their lack of choice due to suppliers' practising price discrimination or the existence of insufficient supplies at lower prices on official markets, identical goods or services may sometimes be sold to different purchasers at different prices. Thus, certain exceptions have to be admitted to the general rule that the existence of different prices automatically implies differences in the qualities of the goods or services sold. The way in which such exceptions are to be treated is described below.

27. Price indices such as Laspeyres and Paasche, which are in common use in national accounts, can be expressed as weighted arithmetic or harmonic averages of the price relatives for the set of goods and services which they are intended to cover. A price relative is defined as the ratio of the prices of exactly the same individual good or service sold under exactly the same conditions at two different points of time. Thus, the price indices used in national accounts can change over time only in response to actual changes in the prices which enter into the calculation of the individual price relatives. All changes in the value index for an aggregate flow, or stock, of goods and services which are not due to such price changes are treated as volume changes. As the quantities of individual goods and services do not all change at the same rate over time, it is clear that volume indices must reflect changes in the structure, or composition, of an aggregate as well as any systematic tendency for the quantities to increase or decrease.

28. It tends to be tacitly assumed in index number theory that each good or service has only one price at any one moment of time so that the price relatives are uniquely defined and can be measured unambiguously. However, when identical goods or services are bought and sold at two or more different prices because purchasers lack information or are prevented from buying at the lowest price, it is necessary to calculate a weighted average of those prices and to define the price relative as the ratio of those average prices. The appropriate weighted average

price is the arithmetic average of the prices weighted by the values of the expenditures at each of those prices, which is equal to the total value of all expenditures on the good or service divided by the total quantities bought or sold. The price relative obtained as the ratio of weighted average prices enters into the calculation of a Laspeyres or Paasche type index with the total expenditure on the item as the relevant weight.

29. When the price differences are attributable to the existence of parallel markets it may not be difficult to estimate the appropriate weighted average prices. Similarly, when pure price discrimination is practiced by a large enterprise in a monopolistic situation, such as a public utility or state owned railway or other transportation service, it may also be feasible to calculate the average prices. However, when the price differences are due to purchasers' lack of information, it may be difficult to calculate the relevant average prices. Finally, it should be noted that non-market goods or services supplied at zero or nominal prices should be excluded. The treatment of non-market goods and services is dealt with in a later section.

Changes in quality over time

30. In the previous section, it was assumed that goods and services do not change their characteristics over time so that it is possible to compare the price of an individual good or service, or more precisely of an individual quality of a good or service, with exactly the same quality of good or service in an earlier period. In practice, goods and services, and the conditions under which they are marketed, are continually changing over time with some goods or services disappearing from the market and other versions or qualities replacing them.

31. In principle, price indices should measure pure price changes calculated by comparing the prices of identical goods and services in different time periods. If the qualities of goods or services which are being compared are not identical, there are effectively three options:

(a) To ignore the change in quality and compile a price relative as if the two qualities were the same;

(b) To omit the items in question and not compile a price relative for them;

(c) To try to adjust the observed price of the new quality for the change in quality which has taken place.

32. The first option is not recommended. Ignoring changes in quality is likely to introduce serious biases of unknown size, or even direction, into the measured price or volume indices. It is no more legitimate to treat different qualities of goods or services in different time periods as if they were the same goods or services than it is to treat different qualities in the same period as if they were the same.

33. The second option is also not to be recommended. In some circumstances, it may lead to less bias than the first option, but it will nevertheless tend to introduce bias. If goods or services are omitted from the calculation of comprehensive price and volume indices of the kind needed for national accounts, the omission of items is equivalent to assuming that their rate of price change is the same as the average for all other items. However, items subject to quality

change tend to be atypical and unrepresentative, so that assuming that their prices change at the same rate as for goods or services whose characteristics do not change is highly questionable.

34. The third option is clearly to be preferred in principle, although it is not easy to implement in practice. One major problem is that when new qualities, and especially completely new kinds of goods or services, are first introduced, there may be a significant divergence between the change in quality as perceived from the purchaser's point of view and from the producers' point of view. If there has been some technological innovation, the change in use value from the purchaser's viewpoint may be much greater than the change in the cost of production, or resource cost. Products which are the result of major new discoveries or innovation typically create disequilibrium at the time of their introduction.

35. In principle, it is preferable to try to evaluate or measure changes in quality from the purchaser's viewpoint, but this can sometimes be extremely difficult to estimate. On the other hand, estimating changes in quality from the production side by means of the estimated change in the costs of producing the two qualities is usually easier and also more objective. Accordingly, changes in quality may be estimated on the basis of the relative change in resource costs whenever there is no practical way in which to evaluate the change in quality from the purchaser's or user's viewpoint.

36. It is possible to give a few examples of the more common methods which are used to estimate changes in quality in practice, and these are briefly described in the following paragraphs.

37. Many goods or services have physical characteristics which are important from the purchaser's or user's point of view and which are numerically measurable. For example, the cubic capacity of a refrigerator, or deep-freezer, is obviously highly relevant from the user's viewpoint as it determines the amount of food which can be stored. If, therefore, a manufacturer brings out a new model whose cubic capacity is increased by 20 per cent while its price is increased by 32 per cent, it could be argued that, as compared with the previous model, the new version represents 20 per cent more product, so that the price increase is only 11 per cent and not 32 per cent. Of course, the example is over-simplified as refrigerators or freezers have other relevant characteristics, such as design, finish or reliability, which may also change, but it illustrates the principle.

38. It is possible to improve the adjustment for change in quality in this example if observations are available on the prices and cubic capacity of different models of refrigerators (or freezers) on the market at the same time. It is then possible to calculate the regression of price on cubic capacity and to use the resulting regression coefficient to produce the expected change in price resulting from a given change in cubic capacity. This allows market forces to determine the weight to be attached to cubic capacity as an indicator of quality instead of making the crude assumption that quality varies in the same proportion as cubic capacity.

39. The regression method just described is a simple example of the so-called hedonic method for estimating quality change. The method is likely to yield even better results if the regressions can be extended to cover more than one characteristic which is relevant to the purchaser or user. In the case of computers for example, regressions can be calculated of the price of different computers on the speed and capacity of their processors. The regressions can also

be extended to cover non-numerical characteristics, such as the possession of colour screens, by the introduction of dummy variables. Because of the rapid technological progress in the field of computers and the enormous increase in their speeds and capacities, it is widely recognized that it is essential to adjust their prices for changes in quality over time, and hedonic methods have been successfully employed for this purpose. Further details about the method may be obtained from specialized articles and books on the subject.

40. While there have been some successful applications of the hedonic method, it must be noted that its use is somewhat limited in practice. In order to be able to use the method, the good or service must possess a small number of key characteristics which are quantifiable and important from the user's viewpoint. Moreover, a range of different models, or versions, of the good or service in which the levels of the characteristics vary appreciably from model to model must all be on sale on the market at the same time. Otherwise, there will not be sufficient variation in the data on which the regressions are calculated and the estimated regression coefficients may become unstable with high sampling errors. In the case of the great majority of goods and services, therefore, it may not be possible to apply the method through lack of suitable data. It should also be noted that the method cannot be used to deal with one of the most intractable problems, namely the appearance of a completely new product with a characteristic, or characteristics, not previously available at all.

41. Many very large capital goods are unique in the sense that they are constructed or manufactured to the specifications of the individual purchaser: for example, office blocks, power stations, ships or heavy machinery and equipment. In general, it is seldom that the same buildings are constructed repeatedly so that it is difficult to obtain a price for the same structure in more than one time period. In order to obtain price indices for such capital goods, it is suggested that a deliberate selection should be made of a limited number of representative structures, ships or other goods, and that experts in the field should be asked to make estimates of the prices of such products in successive years. A price index can be compiled based on an average of the price relatives for these representative products which can then be applied to the group of products as a whole. This method has been successfully used to make price comparisons between countries for purpose of international comparisons where it is almost impossible to make direct comparisons of existing structures or other large capital goods. Because buildings and other large capital goods are almost always built to specification, estimates of prices are continually being prepared within the industries concerned, so that the pricing of a few representative products does not present any major problems for experts in the field.

42. An alternative method which is sometimes used is to compile a price index for the inputs into the production of the capital good in question and to use this as a proxy for an output price index. This method is to be avoided if possible, as it does not allow for changes in productivity.

43. There inevitably remain many products for which changes in quality occur and for which it is not possible to make an estimate of the change in quality on the basis of changes in one or more of the characteristics possessed by the product, either using hedonic or ad hoc methods. In such cases, the change in quality should be estimated on the basis of the relative costs of producing the original product and the modified product which incorporates the change in quality. Thus, if the price of the product incorporating the quality change is x per cent higher

than the original product while it is estimated that it would cost y per cent more to produce the new product than the original, then the time price change after allowing for the change in quality is estimated to be

$$\frac{100 + x}{100 + y}.$$

While quality adjustments based on user values - i.e. based on characteristics important to the user - are preferable to adjustments based on resource costs - i.e. based on relative costs of production - it must be emphasized that it is essential to make one or other adjustment and not to ignore the problem.

44. A new good, as distinct from an improved version or quality of an already existing good, is one whose characteristics are so different from those of any existing good that it is not meaningful to attempt to compile a price relative for that good by comparing it directly with the price of a good available in the earlier period. One difficulty with such new goods is that they are often offered for sale initially at a much higher relative price than that at which they are eventually sold when some kind of market equilibrium has been established. Such goods can only be introduced into the calculation of price indices by linking their price movements to those of some other previously existing good which they gradually displace from the market. The best way in which to link in new products is discussed in more detail in the technical literature on price indices. When the price index is a chain index, new products may be introduced as soon as they make their appearance, but in the case of fixed weight indices it can be argued that their inclusion in the index should be delayed somewhat until their relative price has fallen at least some way towards its equilibrium value.

The choice between direct and indirect measurement of prices and volumes

45. When independent, reliable and comprehensive data are available on the values of transactions in goods and services in successive accounting periods, it is necessary to calculate only one out of a pair of matching price and volume measures as the other can be derived indirectly, as explained earlier. In most cases, it is better to calculate the price index directly and to derive the volume index indirectly. This issue is quite separate from the choice of index number formula. Thus, even though the main objective may be to calculate a Laspeyres type volume index or its equivalent in the form of a series of values at constant prices, the best procedure may still be to calculate the corresponding Paasche type price index directly and to use it to deflate the current values.

46. There are two reasons for preferring to calculate the price index rather than the volume index directly. First, the data actually available on prices and quantities are usually representative rather than comprehensive, so that it is necessary to estimate the average price or volume change from a selection, or sample, of goods and services. In practice, price relatives tend to be less variable, or volatile, then the corresponding quantity relatives (which may range from zero to infinity), so that the price index can usually be estimated more reliably than the quantity index. Second, a value series may contain complete information on quantities but not on prices. Suppose, for example, that there are some new products which are sold in the later period but not the base period; the quantities are known in both periods (being zero in the base period) whereas the prices are known only for the later period. The missing information consists of the prices of the new goods in the base period, which have to be estimated implicitly or explicitly from other price movements. By deflating the current value series by price indices the quantity information on new (and disappearing) products which is incorporated in the series at current values is correctly

reflected in the derived indirect volume measures. This is illustrated in the following simple numerical example where the subscript 0 refers to the base period and t to the later period:

Good	P0	Q0	Pt	Qt
1	4	10	6	12
2	-	-	5	2
Current value	40		82	

Good 2 is a new good not on the market in period 0. The price and quantity relatives for good 1 are 150 and 120 respectively, while for good 2, the price relative is indeterminate, but the value of the quantity relative is actually known, namely plus infinity: this information must not be wasted. The best estimate of the price index for both goods is 150, based on good 1 alone. If this is used to deflate the value index the derived volume index is 82/150 = 130.75. It should be noted that this 40 volume measure is considerably greater than the quantity relative for good 1 alone because the quantity information for good 2 incorporated in the value series has actually been exploited, despite the fact that good 2 is a new product available in only one of the periods. Similarly, the quantity information for disappearing goods (that is, goods available in the base period but not in the later period) which is incorporated in a value series at current prices may be correctly reflected in the volume measures provided the volume measures are derived indirectly by deflation by a price index.

47. The above discussion about the choice between direct and indirect price and volume measures has been conducted on the explicit assumption that the values at current prices are reliable and comprehensive and obtained from different sources from these from which the prices and quantities are obtained. However, it often happens that the movements of the series at current prices have been estimated by multiplying together the estimated price movements and the estimated volume movements. For example, estimates of the value of agricultural output may be made by multiplying estimates of the quantities harvested by estimates of their prices, instead of by attempting to collect information on the values of goods sold or retained for own use. In this case, it is the value index which is obtained indirectly, both the price and the volume indices being estimated directly from data on prices and quantities. Obviously, the above discussion about which out of the price or the volume indices should be derived indirectly is quite irrelevant in such circumstances.

48. When the value of some flow of goods and services is imputed the current value will usually have to be estimated from price and quantity data, the estimated quantities being valued at the appropriate prices. In such cases, the construction of a series at the constant prices of same base year may well be the first step towards the construction of the series at current prices, in which case the choice of index number and method of calculation is largely dictated by the kind of basic price and quantity data available.

49. Many of the flows of goods and services in the accounts consist partly of goods and services which are sold on the market and partly of goods and services produced for own consumption, or own capital formation, whose values are imputed. In such cases, the value of the marketed output may be obtained from one kind of source, while the value of the own account production may be estimated differently from price and quantity data. In other cases, the value of the total output, both marketed output and own-account production, may be estimated together from price and quantity data, such as estimates of the value of the total output of same crop based on comprehensive crop surveys in which it is not possible to distinguish crops intended for sale from those destined for own use.

Non-market goods and services

50. The value of the non-market goods and services produced by government units or non-profit institutions is imputed on the basis of the total costs incurred in their production, as explained in Chapter .... It must be stressed, however, that it is the value of the output which is imputed and not the output itself. The output consists of the goods and services delivered to individual households or collectively to the community as a whole. This output is real and observable in much the same way as other forms of output for which values have to be imputed, such as goods or services produced for own consumption or own capital formation, or the output of financial intermediaries. The fact that the output of non-market goods and services produced by governments or non-profit institutions is valued on the basis of the value of the inputs needed to produce them in no way implies that these outputs cannot be distinguished from these inputs in a real sense. Nor does it imply that movements in those outputs over time cannot be distinguished from movements in the corresponding inputs. It must be emphasized that the System does not therefore assume that the volume changes in outputs are equal to volume changes in inputs for non-market goods or services. Such an assumption is no more necessary for non-market goods or services than for other kinds of outputs whose values are imputed. Changes in productivity occurs in all fields of production, including the production of non-market services, even though they may be more difficult to measure in some fields than others.

51. As noted in the previous section, volume measures may be compiled directly for all forms of imputed output by compiling quantity relatives for all the various individual goods or services involved and calculating a weighted average of these quantity relatives using the imputed values of these goods and services in the base year as weights. Exactly the same method should, in principle, be applied to non-market goods and services. The fact that the base year values attached to non-market goods and services are imputed on the basis of their costs of production is of no particular relevance. Indeed, the base year values for certain kinds of market output, such as own-account construction, may also be imputed on the basis of production costs rather than estimated market prices.

52. Of course, the estimation of quantity relatives for many kinds of non-market goods or services, especially collective services, may be difficult in practice. In some cases, it may be necessary to use quantity relatives based on inputs as proxies for output quantity relatives, but the uses of such approximations should not be interpreted as implying that, in principle, changes in output can be measured by changes in inputs. From a conceptual viewpoint, the use of such approximations is quite unsatisfactory. It should be noted that exactly the same practical difficulties occur in many market industries where it is not uncommon to find changes in inputs used as indicators of changes in outputs, as explained in the following section.

53. In order to measure changes in the volume of non-market goods and services it is therefore necessary to obtain information on the quantities of those services supplied to individual households, to groups of households or to the community as a whole. In practice, most non-market production consists of individual or collective services rather than goods and, in general, the compilation of quantity relatives tends to be more difficult for services than goods. In the case of health and education services delivered to individual households, there is more possibility of developing satisfactory quantity indicators than for collective services such as public administration or defence. The objective is to measure the quantities of services actually delivered by non-market producers to households as distinct from the benefits derived from those services. For example, health services delivered consist of various kinds of consultations and treatments provided to patients, which can be described and documented in considerable detail. Detailed records of services provided frequently exist already for administrations purposes.

54. The output of health services should not be confused with changes in the health of the community. Indeed, a major policy objective may be to see how effective is an increase in the volume of health services in improving the health of community, which obviously requires an independent measure of the volume of health services. It is well known that there are many other factors such as sanitation, housing, nutrition, education, consumption of tobacco, alcohol and drugs, pollution, etc. whose collective impact on the health of the community may be far greater than that of the provision of health services.

55. Similarly, the output of education services should not be confused with the level of knowledge or skills possessed by members of the community. Education services consist basically of lessons or tuition provided by producers of education services - schools, colleges, universities - to consumer of education services - individuals. The level of knowledge or skills in the community depends very much on the amount of study or effort made by consumers of education services, which in turn depends on social attitudes and motivation, as well as on the amount of education services which they consume. It is important to distinguish as many different kinds of education service as possible as their relative costs, or qualities, may vary considerably. Moreover, the quality of services provided may vary over time in response to changes in the amount of resources provided per pupil or student: for example, changes in the numbers of teachers or in capital equipment in the form of laboratories, libraries, computers, and so on.

56. There is no mystique about the provision of health or education services which makes changes in the volume of such services more difficult to measure than volume changes in other fields such as the provision of financial or business services or the production of capital goods, including electronic equipment. In any case, it is also necessary to measure changes in the volume of non-market health and education services consumed by households as these form part of the actual consumption of households. The same principles must be applied to the measurement of the volume of consumption as to production.

57. Measuring changes in the volume of collective services is distinctly more difficult, however, as it is not possible to observe and record such services being delivered. Most collective services are preventive in nature: protecting households or other institutional units from acts of violence including acts of war, or protecting them from other hazards such as road accidents, pollution, fire, theft or avoidable diseases. It is obviously difficult to measure the output of

preventive services, and this is an area in which further conceptual clarification is needed. In practice, it may not be feasible to avoid using measures of the volumes of inputs into such services as proxies for measures of volumes of outputs.

58. When it is necessary to use an input measure as a proxy for an output measure, the input measure should be a comprehensive one and not confined to labour inputs. The value of the labour input should be measured by compensation of employees valued at the wage and salary rates of the base year, the remuneration of each individual type of worker being revalued at the appropriate base year rate. The value of intermediate and capital consumption at base year prices should be added to obtain a comprehensive volume measure covering all inputs. These volume measures can, of course, also be derived by deflating the current values by suitably weighted wage rate or price indices.

59. An alternative method when input measures are used as proxies for outputs is to use a volume measure for labour alone combined with an explicit assumption about changes in labour productivity; for example, that labour productivity grows at 1 per cent per year in the production of the non-market service in question. An assumption of zero productivity growth is the most common one in practice because it is felt to be more neutral, even though it is inevitably somewhat arbitrary. The attention of users should always be drawn to any assumption about the rate of productivity growth which should be stated explicitly, even when it is zero.

Price and volume measures for gross value added

60. As stated in Chapter ... the gross value added of an individual producer, industry or sector is measured by the increase in the value of outputs of that producer, industry or sector over the value of its intermediate inputs measured with reference to a specified vector of prices:

that is, by:

$$\sum PQ - \sum pq$$

where the Ps and Qs refer to outputs and the p's and q's to intermediate inputs. Introducing the subscript O for the base period and subscript t for the current period, value added in year t at current prices is given by:

$$\sum P_t Q_t - \sum p_t q_t$$

while value added in year t and the prices of the base year is given by:

$$\sum P_o Q_t - \sum p_o q_t$$

This measure of value added is generally described as being obtained by "double deflation" as it can be obtained by deflating the current value of output by an appropriate (Paasche type) price index and by similarly deflating the current value of intermediate inputs by an appropriate price index for those inputs.

61. Within an integrated set of price and volume measures covering all the flows of goods and services in the accounts, including the input-output table, gross value added has to be measured by double deflation method. Otherwise, it will not be possible to balance uses and resources identically. However, gross value added measured at the prices of some other year is liable to throw into sharp relief some underlying index number problems which are not always very evident. Vectors of

prices and quantities are not independent of each other. In practice, for economic units which are price takers, the relative quantities which they produce or consume are functions of the relative prices with which they are confronted. If the relative prices change, the relative quantities will be adjusted in response.

62. In the case of production, if the vector of output and input prices changes the relative quantities of outputs produced and intermediate inputs consumed may also be expected to change. A process of production which is efficient at one set of prices will not generally be efficient at another set of relative prices. This implies that if a set of output and input quantities is revalued at another set of prices, it must be recognized that the process would not generally be efficient at those prices. If the other set of prices is very different from the actual set, the inefficiency of the process may reveal itself in a very conspicuous form, namely negative gross value added. Even if the revalued gross value added is not itself negative, the gross or net operating surplus derived residually within the framework of an input-output table at the constant prices and wage rates of some other year may turn out to be negative, thereby flagging the fact that the production process would not actually be used at those prices.

63. Price and volume measures which lead to negative values are not generally acceptable for analytic purposes. For this reason, the calculation of gross value added at the constant prices of some base year has been criticized as an inappropriate method because it may lead to analytically useless results. However, the underlying problem is not peculiar to the measurement of gross value added. It is present whenever a vector of quantities is valued at a vector of prices at which that vector of quantities would never actually be produced or consumed. Continuing the two vectors is a kind of economic contradiction. The problem with gross value added is essentially that because it is a balancing item obtained as a difference between two flows revalued at base year prices it is liable to flag the contradiction in a conspicuous and awkward way. In general, if the vector of prices in the base year becomes very different from that in the current year it may become economically meaningless to revalue current quantities at these prices. However, it must be emphasized that the same conclusion must be applicable to other aggregates such as output of final consumption, although the problem does not reveal itself so obviously.

64. The practical conclusion to be drawn is that double deflation should only be employed when the differences between the patterns of relative prices are only marginally different between the base period and the current period. In effect, this is an argument for changing base years frequently and not allowing constant price series to be calculated over too many years. It is therefore recommended that base years should be changed about every five years to avoid imposing economically unrealistic price vectors on actual quantity vectors.

65. Although this section has discussed the measurement of gross value added at constant prices in a time series context, it may be noted that revaluing the inputs and outputs of a production process in a developed country by the relative prices of inputs and of outputs in a developing country (or vice versa) is also likely to lead to some negative value added figures because of the big differences in relative price between developed and developing countries. There is no way of avoiding the conclusion that direct comparisons between situations which are very dissimilar in terms of their relative prices and relative quantities may not be very meaningful from an economic point of view. In such cases, it may be better to make comparisons via intermediate situations: that is, to use some form of linking or chaining.

66. If all the flows of goods and services in an input-output table are systematically revalued at the prices of some other period, whether the preceding period or some earlier base year, it is clear that the gross value added of an individual industry must be equal to the difference between the total output of an industry and its total intermediate inputs revalued at the prices of the other period. This is the only way to ensure consistency with total GDP obtained as the difference between total final expenditures and imports, also revalued at the prices of the other period. Thus, the use of double deflation to measure changes in the volume of gross value added is unavoidable within the input-output table - that is, within the framework of an integrated set of price and volume measures - despite the difficulties noted above for comparisons between situations whose price structures are very different from each other.

67. However, in many countries systematic revaluations of complete input-output tables may be undertaken only very exceptionally, if at all, while there are very few countries which are able to undertake such revaluations annually. Thus, it is necessary to consider short-cut methods for measuring changes in gross value added at constant prices which may be used for individual industries outside of the framework of the input-output table. For brevity, gross value added revalued at the prices of some base year will be described as "real value added" as it permits direct volume comparisons to be made with the base year.

68. As value added is measured as the difference between the flow of output and the flow of intermediate inputs, it is sensitive to errors of measurement. In practice, the measurement of volume changes for output and volume changes for intermediate inputs are both susceptible to error, especially the measurement of volume changes for intermediate inputs for which the data on prices or quantities may be poor in quality. These errors will tend to cumulate, and there is no reason to assume they will tend to cancel out. Thus, the measures of real value added obtained residually may become so sensitive to the combined errors in the input and output series from which they are derived that they display such volatile movements that they cannot be used for purposes of economic analysis or policy.

69. In this case, it may be better to abandon the double deflation procedure and to try to estimate movements in real value added directly using a single indicator. There are two procedures which may well yield quite satisfactory approximations to the movements of real value added, at least over the short term. If there are good estimates available for gross value added at current prices, one procedure is to deflate current value added directly by a price index for gross output. This procedure could be described as single deflation. It can be shown that it is likely to yield quite a close approximation to real value added. The alternative procedure is to extrapolate value added in the base year by a volume index for output. This method is likely to yield very similar results to the first method and can be used when no data are available for value added at current prices. The volume index which is used to extrapolate base year value added can itself be calculated either by deflating current values of output by appropriate price indices, or by compiling a volume index directly from quantity data. If the data on the values of output at current prices are comprehensive and reliable, the deflation of such values by suitable price indices is likely to yield better estimates of the volume changes than a volume index compiles directly from quantity data, for reasons given earlier.

70. The measurement of real value added by deflating current value added by a price index for output or extrapolating base year value added by a volume index for

output is an acceptable second-best solution when the data available are not sufficiently accurate and robust to permit the use of double deflation. Unfortunately, however, it is sometimes not even possible to obtain satisfactory estimates of price or volume changes for output - for example, in certain market and non-market services industries such as finance, business services, education or defence. As stated in the previous section, this is a problem which is by no means confined to non-market service industries. In these cases, it is necessary to resort to third-best solutions unless the measurement of the real value added for these industries is abandoned altogether, which may imply abandoning the measurement of real GDP as a whole, as the same problems may be present for the data on final expenditures. These third-best solutions involve estimating movements of real value added on the basis of the estimated volume changes of the inputs into those industries. The inputs may be total inputs, labour inputs on their own or intermediate inputs on their own. For example, it is not uncommon to find the movement of real value added estimated by means of changes in compensation of employees at constant wage rates, or even simply by changes in number employed, in both market and non-market service industries. Compilers of data may be forced to adopt such expedients through lack of better data, even when there is no particular reason to assume that labour productivity remains unchanged in the short term or the long term. Sometimes, volume changes for intermediate inputs may be used: for example, short-term movements of real value added for the construction industry may be estimated from changes in the volume of building materials consumed - cement, bricks, timber, etc. The use of indicators of this kind may possibly be the best way in which to estimate short-term movements in real output or real value added, but they are not acceptable over long time periods. In any case, the use of third-best solutions is a consequence of lack of data and the subject as such has no real place in the conceptual framework of the System.

Additive consistency and choice of index number

71. All changes in the current values of flows of goods and services which appear in the System can be directly decomposed into price and volume components, most of these flows being recorded in the input-output table of the System. These flows may be presented at different levels of aggregation and their components may be reclassified and rearranged in various ways. Within a network of flows of the kind displayed in national accounts it is important that the price and volume measures for aggregates and their components should be mutually consistent in the sense that it should be possible to deduce, or derive, measures for aggregates from those for their components. In other words, the measures need to be "additively consistent". An index is said to be additively consistent if the index for some aggregate is identical with a weighted average of the indices for its component using the values of the components in one or other of the year being compared as weights. This implies that an aggregate index can be built up from the indices for its components, or the index for some component can be calculated residually by removing the other components from the aggregate.

72. Laspeyres volume indices are additively consistent using base year values as weights. This property is obvious when Laspeyres volume indices are converted into values at base year prices by multiplying the base year values by the indices. The resulting values (i.e. expressions of the form p0qt) can be manipulated in the same way as current values (i.e. expressions of the form ptqt), the values of aggregates being obtained by the simple addition of their components. This is a convenient property which is attractive to users. Additivity is also a necessary property if gross value added is to be obtained by subtracting intermediate inputs at base year prices from output at base year prices.

73. Laspeyres indices are additively consistent using base year values; similarly Paasche indices are additively consistent using current values. While additive consistency may appear at first sight to be an elementary property which most indices might be expected to possess, in fact many indices in common use, such as the Fisher index, are not additively consistent. It is worth spelling out the exact implications of this.

74. Suppose an aggregate such as consumers' expenditure is divided into two components, expenditures on goods and expenditures on services, and suppose the values of these expenditures are known for two different years and the values of the Fisher price and volume indices are also known. It is not possible from this information alone to calculate the Fisher index for consumers' expenditure as a whole. In order to calculate the Fisher price or volume index for total consumers' expenditure it is necessary to carry out a new calculation which, at a minimum, involves unscrambling the Fisher indices into the separate Laspeyres and Paasche indices of which they are composed. The fact that the Fisher indices themselves are not additively consistent is undoubtedly a serious inconvenience when analysing a set of interrelated flows. It makes it impossible for the analyst to derive other measures in which he may have a special interest. For example, Fisher indices may be published for gross fixed capital and one of its components, machinery and equipment: from this published information it is not possible to deduce the value of the Fisher index for the other component, construction, even though the actual values of machinery and equipment and construction may be published for both years concerned.

75. Chain indices are also not additively consistent in general. If a chain index is formed from a series of links consisting of Laspeyres indices connecting successive years, the indices making up each individual link in the chain are additively consistent, but not the indices obtained by multiplying successive year-to-year changes together to obtain a chain index spanning several years. This would manifest itself directly if the chain indices were to be converted into time series of values "at base year prices" by multiplying the indices by the values in the base year. The resulting values of the components for some aggregate would fail to sum identically to the value of the aggregate itself. Not only could this necessitate showing statistical discrepancies whenever any aggregate is decomposed into its components but it would also mean that values for other aggregates could not be derived by users seeking to regroup or reclassify the data.

76. Several types of indices, such as the Fisher index or a Tornqvist index, which can be shown to have desirable theoretical properties for a single aggregate taken in isolation turn out not to be additively consistent. Similarly, although powerful theoretical and practical arguments can be advanced in favour of the use of chain indices (especially chain indices which use symmetric indices, such as the Fisher or Tornqvist index, for the individual links in the chain), chain indices also are not additively consistent, as already noted.

77. Confronted with the trade-off between additive consistency and other index number properties, some compromise is called for in practice. One solution is to present both Laspeyres type volume measures which are additively consistently and readily convertible into constant price value series and chain indices. This enables users and analysts to choose the data which are most suitable for their own purposes, but it risks creating some confusion among users as to which is the "correct" measure of GDP growth or inflation. It is suggested that chain indices could be presented as "supplements" to Laspeyres type volume measures as the latter

are likely to be used more extensively in practice, so that priority would be accorded to the traditional constant price data which are easier to understand, particularly by non-specialists.

78. The other compromise is to calculate Laspeyres type volume measures over short runs of years, and to rebase the Laspeyres indices at frequent intervals, such as every five years. Each time a new base year is introduced the data for previous years are not recalculated at the prices of the new base year, but linked to the years following the new base years. This implies that long-term measures of prices and volumes consist essentially of chain indices with links every five years instead of every individual year. This procedure is followed by many countries in practice and is considered to be an acceptable compromise by many compilers and users of national accounts. Of course, if this procedure is followed it is also possible to present chain indices with annual links as supplementary data.

The scope of price of volume measures in the System

79. The price and volume measures considered up to now all relate to stocks or flows of goods and services as defined in the System: that is, to goods and services produced as outputs from processes of production. However, it is possible to decompose certain other flows directly into their own price and volume components, the most important of which is compensation of employees.

80. The quantity unit for compensation of employees may be considered to be an hour's work of a given type and level of skill. As with goods and services, different qualities of labour inputs must be treated as different kinds of inputs and quantity relatives calculated for each separate type of labour input. The prices associated with each type of labour input is the compensation paid per hour which may vary considerably, of course, between different categories of labour. The volume measure of labour inputs may be calculated as an average of the quantity relatives for different kinds of labour weighted by the values paid in compensation of employees in the base year. Alternatively, the equivalent of a price index may be calculated measuring the average change in compensation paid per hour, also weighing the changes for different types of labour input by the amounts paid in compensation of employees. If a Laspeyres type volume index is calculated indirectly by deflating the changes in compensation of employees at current values by an index of the average change in compensation paid per hour, the latter should be a Paasche type index.

81. Another component of gross value added, namely capital consumption, may be measured at constant prices without difficulty in principle. Indeed, when capital consumption is derived as by-product from the calculation of the gross and net capital stocks, using the perpetual inventory method, an estimate of capital consumption at the fixed prices of some base year is already built into such calculations.

82. It is also possible to factor taxes or subsidies on products into their own price and volume components because the quantity units on the basis of which such taxes or subsidies are levied can also be used as quantity units to define "tax prices". A tax price is the amount of tax paid per unit of good or service, whether the tax is assessed per unit of quantity or ad valorem. The tax prices can be used to construct tax price relatives which can then be averaged to construct tax price indices using the values of the amounts paid in tax as weights. The tax volume index can be derived indirectly by deflating changes in the total amounts of

taxes paid by the appropriate version of the tax price index. A tax volume index is essentially a volume index for a flow of goods and services in which the relative importance of those goods and services is evaluated not by their relative market prices but the relative amounts of tax paid per product. It shows by how much the receipts from taxes or products change purely in response to changes in the volume of goods and services subject to tax. Factoring tax receipts into price and volume components may be useful for the analysis of tax receipts and may also be useful in the context of an input-output table.

83. The net operating surplus is an accounting residual which does not possess any dimensions of its own which can be used to define units of quantity. It may also be negative, of course. It is not possible, therefore, to decompose the net operating surplus into its own price and volume components. It is also not possible, therefore, to calculate the average rate of growth of all the individual components which make up gross value added. On the other hand for purposes of productivity analysis, it is possible to measure the average rate of growth of labour and capital inputs in various ways by utilizing data on the gross or net capital stock and capital consumption.

84. Thus, the limit to a set of integrated price and volume measures within the accounting framework provided by the System is effectively reached with the net operating surplus. It follows that it is not possible to attempt to factor all the flows in the income accounts of the System into their own price and volume components in any kind of systematic way. Of course, any income flow can be deflated by a price index for a numeraire set of goods and services to measure the increase or decrease of the purchasing power of the income over the numeraire, but this kind of deflation is quite different conceptually from deflating the value of a flow of goods and services by the price index for the same flow in order to measure the change in the volume of those goods and services.

International price and volume comparisons

85. The general principles involved in measuring differences in the volumes of goods or services between countries, or differences in price levels between countries, are the same as those for intertemporal comparisons within a single country. As in intertemporal comparisons, it is usually better to deflate current values by price indices rather than to attempt to compile volume indices directly from quantity data. The fact that prices in different countries are usually expressed in different currency units is a mere technicality which raises no new issues from a conceptual viewpoint.

86. Price relatives can be compiled between a pair of countries by comparing the prices of the same goods and services in the two countries which can then be averaged to obtain a price index using the values in one or other country as weights. This price index can then be used to deflate the ratio of the values of the aggregate in question expressed in the currencies of the two countries to obtain a volume index which has the same properties and characteristics as in intertemporal volume index. An international price index calculated in the way just described differs from an intertemporal price index in that the currency units are usually not the same in the two countries. For this reason, the index is usually described as a "purchasing power parity", or PPP, as it shows the rate at which the currency of one country would need to be converted into the other in order to obtain the same purchasing power over the goods and services in the second country.

87. International comparisons of prices and volumes can be more complicated than intertemporal comparisons for the following reasons:

(a) The differences in relative prices between two countries are liable to be very much greater than between different periods of time in the same country. The associated index number problems are therefore heightened and the results obtained are more sensitive to the index number formula employed.

(b) Differences in the types and qualities of goods and services found in different countries are liable to be greater than in different time periods within the same country. It is more difficult to obtain a precise matching of goods and services when calculating price relatives.

(c) International comparisons have to be made for groups of countries simultaneously. There is no natural way in which to order countries so that the comparisons cannot be undertaken sequentially as in intertemporal comparisons. This means that it is important to ensure that the entire set of comparisons are transitive. The easiest, and most transparent, way in which to achieve transitivity is by the use of a fixed set of prices which are characteristic of the group of countries as a whole, such as the average prices for the group.

(d) There is inevitably a trade-off between the need for transitivity, which introduces constraints on individual binary comparisons and the need to obtain measures for pairs of countries which would be considered optimal for those two countries taken in isolation from the group.

88. These kinds of problems are considered in much more detail in the relevant Manual. (Note it is not clear how much text should be devoted to international comparisons in the SNA as the subject is large, specialized, and complicated. However, the present is clearly much too short and will need to be expended.)

MEASURES OF REAL INCOME

Introduction

89. It is possible to deflate any item in the accounts, including balancing items such as saving, by a price index in order to measure the purchasing power of the item in question over the numeraire set of goods and services which the price index covers. Assume, for example, that the set of goods and services which make up Gross Domestic Expenditures (i.e. total final consumption expenditures plus gross capital formation) in some selected base year is selected as the numeraire. Laspeyres price index may be calculated for Gross Domestic Expenditures and used to deflate the current value of item in the accounts in a later year. By comparing the deflated value with the actual value of the same item in the base year, it is possible to measure the increase or decrease in the purchasing power of the item over the numeraire set of goods and services. A value deflated in this way is generally described as a "real value".

90. In interpreting real values, two points need to be borne in mind.

(a) Real values are measured with references to price levels in some selected base year. Real values cannot exist in isolation: they are always measured relatively to values prevailing in some base year.

(b) Real values measure purchasing power over some selected numeraire; they thus depend upon the choice of numeraire, and significantly different real values may be obtained depending upon the composition of the set of goods and services selected.

91. When a flow of goods and services is factored into its own price and volume components, the volume change can be regarded as the increase in the real value of that flow of goods and services using itself as numeraire. However, for flows other than goods and services, there may be no obvious, or uncontroversial, choice of numeraire and therefore there has always been some reluctance to present real values in systems of accounts on the grounds that the choice of numeraire would be left to the user of the statistics and not the compiler.

92. However, when there are major changes in prices, which may also affect different groups of institutional units in different ways, it can also be argued that compilers of statistics are under an obligation to present at least some real values in addition to volume measures for goods and services. Not all users of the accounts have the opportunity, inclination or expertise to compile the real values which may be most suited to their own particular needs. In particular, there is a demand from many users for multi-purpose measures of income, at least for the major income flows of the System, and the purpose of this section is to indicate how such measures may be compiled.

Real disposable income

93. The concept of income is generally understood as referring to the value of the goods and services which can be consumed within a given time period while maintaining wealth intact, so that it is natural to measure real income using the set of goods or services normally consumed by the institutional unit, or group of units, in question as the numeraire. Thus, real disposable income may be calculated by deflating current disposable income in money terms by a price index for the set of goods and services consumed by the income recipients in some selected base years. Thus, real disposable household income should be measured by deflating current disposable household income by a Laspeyres price index for household consumption. It is a well-known result in the economic theory of index numbers that the increase shown by a Laspeyres price index is somewhat greater than the increase in money income which is needed to maintain a given standard of living, or level of utility, so that deflating current income by a Laspeyres type price index will tend to give a lower bound to the increase in the welfare of units concerned. Conversely, deflating by a Paasche type price index will tend to exaggerate the increase in welfare somewhat. The use of an index such as the Fisher or Tornqvist indices will tend to eliminate the welfare biases resulting from the use of Laspeyres or Paasche indices, as also will the use of a chain index whose weights are updated each year.

Trading gains and losses from changes in the terms of trade

94. Before considering all the various real income aggregates which may be distinguished in the System, it is necessary to consider the difference between Real Gross Domestic Product, Real GDP, and Real Gross Domestic Income, or Real GDI. Real GDP is defined as GDP at constant prices: that is, total final expenditures at constant prices less imports of goods and services at constant prices. It is calculated by a form of double deflation in which imports valued at the basic prices of the base year (i.e. excluding taxes on imports) are subtracted

from total final expenditures valued at the purchasers' prices of the base year. A measure of this kind is essentially a measure of the output from domestic production even though it may not be identical with the sum of the real values added of all industries or sectors.

95. However, the real income which residents derive from domestic production depends also on the rate at which the exports they produce are traded against imports from the rest of the world. If the prices of a country's exports rise faster (or fall more slowly) then the prices of its imports - that is, if its terms of trade improve - less exports are needed to pay for a given level of imports so that at a given level of domestic production it is possible to reallocate goods and services from exports to domestic consumption or capital formation. In other words, an improvement in the terms of trade makes it possible for an increased volume of goods and services to be purchased by residents out of the factor incomes generated by a given level of domestic production. Real GDI refers to the purchasing power of the income generated in production so that if there are important changes in the terms of trade over time there may also be a significant divergence between the movements of real GDP as a measure of domestic production and changes in real GDI, the purchasing power of the incomes generated by that production. The difference between the change in real GDP and real GDI is generally described as the "trading gain" (or loss). It should not be assumed that the differences between movements in real GDP and real GDI tend to be relatively small. If imports and exports are large relatively to GDP, and if the commodity composition of the goods and services which make up imports and exports are quite different, the scope for potential trading gains and losses may be very large indeed. This may happen, for example, when the exports of a country consist mainly of a small number of primary products, such as cocoa, sugar or oil, while its imports consist mainly of manufactured products. It can easily be shown that trading gains or losses, T, are measured by the following expression:

$$T = \frac{X - M}{P} - \left(\frac{X}{Px} - \frac{M}{Pm} \right)$$

where X = exports at current prices
M = imports at current prices
Px = the price index for exports
Pm = the price index for imports
P = a price for a selected numeraire

with Px, Pm and P all equal to 1 in the base year. It can be seen that the term in brackets measures the real trade balance (i.e. at the export and import prices of the base year) whereas the first term measures the actual current trade balance deflated by a numeraire index. It is perfectly possible for the real trade balance to be positive when the actual trade balance is negative, or vice versa.

96. There is one important degree of freedom in the measurement of trading gains or losses, namely the choice of the price index P with which to deflate the trade balance at current prices. There is a large literature on this subject which is inconclusive on this point, except that it is agreed that the choice of P can sometimes make a substantial difference to the results. Thus, the measurement of real GDI is sensitive to the choice of P and this fact has prevented progress on this issue.

97. It is not appropriate to try to summarize here all the various arguments in favour of one deflator or another, especially since no consensus has emerged in the literature. However, it is necessary to indicate what are the main alternatives which have been advocated for P. They can be grouped into three classes, as follows:

(a) One possibility is to deflate the current balance, X-M, either by the import price index (which has been strongly advocated) or by the export price index, with some authorities arguing that the choice between Pm and Px should depend on whether the current trade balance is negative or positive.

(b) The second possibility is to deflate the current balance by an average of Pm and Px: various different kinds of averages have been suggested - simple arithmetic or harmonic averages, or more complex trade weighted averages.

(c) The third possibility is to deflate the current balance by some general price index not connected with foreign trade as such: for example, the price index for GDP on Gross Domestic Expenditure, or the Consumer Price Index.

98. The failure to agree on the choice of deflator reflects the fact no single deflator may be optimal for all circumstances. The choice of deflator may depend on factors, such as whether or not the current balance of trade is in surplus or deficit, the size of import and exports in relation to GDP, and so on. In general, the choice of deflator depends on the purpose for which a particular item or flow is to be utilized, and this can vary from country to country.

99. On the one hand, there is a consensus that it is necessary, and for some countries vitally important, to calculate the trading gains and losses resulting from changes in the terms of trade, while on the other hand, there is no consensus about the general deflator P which is to be used because there may be no deflator which is optimal in all circumstances. In order to deal with this situation, the System recommends the following:

(a) Trading gains or losses, as defined in the expression given above, are to be treated as an integral part of the System, which should therefore always be shown in the accounts.

(b) If the statistical authorities within a country are not clear what is the most appropriated general deflator P to be used, they should employ an average of the import and export price indices. If the statistical authorities are not clear what average to employ, they should use the simplest and most transparent average, namely a simple, unweighted arithmetic average of the import and export price indices. (This is referred to in the specialist literature on the subject as the Geary method.)

(c) On the other hand, if the statistical authorities in a country consider that there is a good economic rationale to choose a different deflator for P, they should use that deflator.

100. These proposals are intended to break the deadlock whereby failure to agree on a universal deflator has impeded the development of aggregate real income measures in the System. The calculation of the trading gain is mandatory, but the choice of general deflator for the trading gain is not mandatory. The fact that no particular deflator is mandatory cannot, however, be used as an excuse for not

calculating the trading gain or loss, because in those circumstances in which there is no obvious choice of deflator the System does make a specific recommendation, namely an average of the import and the export price indices. This does not, however, prevent those statistical authorities who wish to choose a different deflator from doing so. It may appear that the flexibility, or element of choice, in the System's proposals may reduce the international comparability of the resulting figures. However, this is not the case, because the use of a single deflator for all countries in all circumstances may produce results which are economically meaningful and analytically useful in some countries and circumstances but not in others. Such data are scarcely internationally comparable. In any case, without the flexibility there may be no figures to compare internationally.

The interrelationship between real income aggregates

101. Having determined the way in which trading gains or losses are to be calculated, it is possible to describe the interrelationships between various real income aggregates that may be identified within the System. These are displayed in the following table.

(a) Real Gross Domestic Product: i.e. GDP at constant prices calculated from production or expenditure data plus the trading gain or loss resulting from changes in the terms of trade

(b) equals: Real Gross Domestic Income plus real net factor income from abroad

(c) equals: Real Gross National Income plus real net current transfers from abroad

(d) equals: Real Gross National Disposable Income less consumption of fixed capital at constant prices

(e) equals: Real Net National Disposable Income

102. In the above accounting scheme, each aggregate is derived sequentially starting from Real Gross Domestic Product which is a volume measure of GDP. The transition from (a) to (b) above, i.e. from Real GDP to Real GDI has been explained in the previous section. The steps needed in order to move from (b) to (d) above involve the deflation of two flows between resident and non-resident institutional units, namely, net factor income from abroad and net current transfers from abroad. There may be no automatic choice of deflator, but it is recommended that the purchasing power of these flows should be measured with reference to a broadly based numeraire, namely the set of goods and services which make up gross final domestic expenditure. In other words, net factor income and net current transfers from abroad should both be deflated by a price index for gross final domestic expenditures. The transition from Real Gross to Real Net National Disposable Income is made by subtracting the consumption of fixed capital at constant prices.

103. When Real GDP is calculated at the constant prices of some base year, the volume index is Laspeyres type and the implicit price index is Paasche type. Similarly, the volume measures of exports and imports which enter into the calculation of the real trade balance used to calculate the trading gain may be presumed to be Laspeyres type. In order to ensure consistency of index number formulae, therefore, the deflators used to deflate the current trade balance and net factor and net current transfers from abroad ought also to be Paasche type.

104. An alternative approach which can be considered is to use the following accounting framework.

(a) Real Gross Domestic Product: i.e. GDP at constant prices plus imports at constant prices minus exports at constant prices

(b) equals: Real Gross Domestic Final Expenditures: i.e. final consumption expenditure plus gross capital formation less consumption of fixed capital at constant prices

(c) equals: Real Net Domestic Final Expenditures plus real net current receipts from abroad

(1) exports minus imports

(2) net factor income from abroad

(3) net current transfers from abroad

(d) equals: Real Net National Disposable Income

105. In this framework, all net current receipts from abroad are deflated by a single deflator, that for item (c), namely Net Domestic Final Expenditures. In effect, the (Paasche type) price index for Gross Domestic Final Expenditures acts as a general price deflator for all items from row (c) onward except for capital consumption. The deflator for Gross Domestic Expenditures could be used instead, if there are no satisfactory estimates available for capital consumption at constant prices so that the income measures have to remain gross.

106. This alternative framework has the advantage that the various components of real income are measured with reference to a single numeraire, the set of goods making up Net Domestic Expenditures. It is easier, therefore, to grasp the significance of Real Net National Disposable Income as its deflator is explicit. However, the alternative framework suffers from the disadvantage that it implicitly measures the trading gain or loss by using the deflator for Net Domestic Expenditures as the general deflator P, whereas it can be argued that P ought always to be based on flows which enter into foreign trade. There is, for example, a possibility the implicit trading gain may be negative when there is a positive change in the terms of trade, or vice versa, and this may be considered a decisive disadvantage. On balance, therefore, the original framework presented above is recommended. However, it is also clear that the guidelines laid down by the System need to be somewhat more flexible or tolerant in the domain of real income measurement than elsewhere, and the use of alternative deflators, for what may be considered to be good statistical or economic reasons, cannot be treated as a break of the basic principles underlying the System.

CHAPTER XIII: APPLICATION OF THE INTEGRATED FRAMEWORK TO VARIOUS CIRCUMSTANCES AND NEEDS*

Introduction

1. The central framework of the SNA pursues at least two objectives. Firstly, it tries to help the development of a given country's own system of national accounts, by providing guidance to the national accountants of this country, in order to avoid their having to search out and experiment again with what has been previously tried by others. Secondly, it aims at achieving international comparability between the national accounts of various countries, in order to facilitate economic and social analysis in a worldwide economy. As such it is a set of integrated international standards.

2. These two objectives may appear to be in conflict in so far as many differences exist among countries with respect to their stage of development, economic and social structure, legal organization, economic and social policy, etc. This is true to a certain extent especially when looking at countries in very different situations. However, the premise is that the accounting structure is general enough to suit most cases. This does not mean of course that all countries' peculiarities are reflected in the SNA standards, which would be impracticable. It does mean that countries' specificities may normally be accommodated within the margins of flexibility provided by the System, especially when designing classifications of transactions and transactors and determining the related definitions. Even the most detailed levels of the System's classifications remain general in character and are not _a priori_ relevant for any economy. Of course, some items may not exist in some countries, like value added tax or import subsidies, and consequently they will not be retained in their national classifications. Alternatively, a country could find it useful to show more details at a given level of a classification or to introduce additional levels. The national accountants of this country are encouraged to do this, keeping in mind the necessity of preserving international analysis.

3. It is intended that the integrated SNA framework be implemented by countries in a way which does not conflict with their own requirements. Conversely, it should be possible to elaborate national accounts creatively in a given country in such a way that does not require departing from the main international standards.

4. In general, in response to analytical requirements and data availability, the emphasis put on various aspects may vary within the context of the integrated system. This may be achieved by using the System's classifications of institutional sectors, industries, products, transactions, accounts, etc. at various levels or including additional ones, by retaining alternative methods of valuation, different priorities for various parts of the accounts and different frequencies, by rearranging the results for publication, etc. The complementary classification of transactions was especially designed for additional presentations and analysis. It is also possible to re-order the institutional sub-sectors in order to give more importance to the criterion of control which, in the hierarchic

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

classification, does not appear at the first or even second level of it. Moreover, one may introduce additional criteria which, while not being included in the basic classifications of the SNA, do not conflict with the logic of the System, like size of employment for enterprises or size of income for households or the distinction between rural and urban segments of the economy.

5. The purpose of this chapter is not to elaborate in detail how a country may design its own implementation of the SNA, but to show how, by using it in a flexible way, the central framework may be adapted to special circumstances or types of analysis. The chapter provides a number of examples. In order to avoid misunderstanding it has to be made clear that what is presented in this chapter is not outside the central framework, but rather the ways and means of building up a central framework with specific features according to national circumstances and needs.

Detailed analysis of the household sector

6. For in-depth analysis of economic and social conditions of the population, great importance has to be given to the analysis of the household sector. In the SNA as much importance is attached to the accounts of the household sector as to the accounts of other sectors. Apart from the fact that proper households and non-profit institutions serving households are put in the same broad sector 1/, the household sector is a complex one. In effect, it covers firstly, the domestic transactions of households. Secondly, it covers activities households carry out and transactions they realize in connection with production activities which are not organized on a corporate or quasi-corporate enterprise basis. For those households which are engaged in production activities, the household institutional unit realizes both kinds of transactions and holds assets and liabilities belonging to and incurred by the household in question. There is only one figure for this unit's saving and one for its net worth. In effect, there is no way of observing, after entrepreneurial income has been calculated, how this income is distributed partly to the household as consumer, and partly retained in the enterprise, because no such distribution actually takes place. Although some assets and liabilities may be identified as being of an enterprise-type or a domestic type, others may not, but in any case it is the household as such which is the owner of all assets and is responsible for all liabilities.

7. Most households include a number of individuals who differ not only in physical characteristics like sex and age, but also as to whether they are in employment or not and if employed may be engaged in different productive activities. So the economic characteristics of a given household may be rather heterogeneous. However, the socio-economic status of a household makes sense, because all its members live together and because they are linked by family or similar relationships and share many common features both from a social and economic point of view.

1/ In this section, only "households excluding non-profit institutions serving households" are considered. For sake of simplification, the term households is used in the text.

8. As the household sector as a whole is very heterogeneous economically and socially, it is absolutely necessary to separate out, inside this sector, more homogeneous groups. The System includes a classification of sub-sectors of households. Households are allocated to these sub-sectors according to the socio-economic characteristics of the reference person, who normally provides the main source of income. The classification of sub-sectors contains only six groups, because it would be difficult to elaborate a detailed classification applicable at the world level (see Chapter III and IV). Countries may like to introduce a more detailed breakdown. Various criteria might be used. For employers and own-account workers, the kind of economic activity they are engaged in, like agriculture, industry and services, is obviously meaningful. However, inside these broad categories of economic activity the type and size of the business and subsequently income and wealth, may differ considerably. Countries may like therefore to introduce additional criteria, which may vary from one activity to the other, relative to the type and size of the enterprise of which a household is the owner. The size can generally be defined in terms of number of employees and family workers, except in agriculture where the area, the number of cattle, etc., have to be taken into account. The type of enterprise refers to the way it is organized and operated, taking into consideration the legal or absence of legal status, the existence or not of accounts, the more or less stable or precarious nature of the activity, etc. A distinction commonly referred to is the one between formal and informal activities which relies upon these kinds of criteria. In spite of the fact that a certain degree of informal activity may exist marginally in developed countries, the distinction is particularly relevant for developing countries. In many of them, it is crucial due to the number of people involved (street traders, shoe cleaners, etc.) who are generally own-account workers, but may be employers too. The distinction between formal and informal activities/enterprises is recommended in the System, when relevant, although no international standard definition is available at the time the System is established. It will be used for further sub-sectoring of employers and own-account workers.

9. For employees, various levels of skills may be distinguished. Other criteria like the broad categories of activities (agriculture, industry, services) or type of enterprise in which people work may also be used.

10. The rural/urban distinction may be essential in certain circumstances. The following chart summarizes all these alternatives. (See Table 13.1.)

11. The full sequence of accounts is relevant for all sub-sectors. However, the production and generation of income accounts are important mainly for the employers [2] and own-account workers sub-sectors. Building up these accounts even roughly is in many cases the only way to get an approximation of the mixed income accruing to those households. It has to be recalled that the System asks for simple production account for each institutional sector and sub-sector without any kind of breakdown of output and intermediate consumption by products. Production and generation of income accounts in the case of the other sub-sectors cover only

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2/ Note that a household whose reference person is the owner of a quasi-corporation will be classified in the sub-sector for employers. However, the production and generation of income accounts of this enterprise are recorded in the sector non-financial corporations, not in the household sector. The owner receives an income called "withdrawal from income of quasi-corporations".

TABLE 13.1 Subsectoring of households

SUB-SECTORING OF HOUSEHOLDS

SOCIO-ECONOMIC STATUS	ECONOMIC ACTIVITY	TYPE OF ENTERPRISE	SKILL	LOCATION
EMPLOYERS	agriculture industry services	formal/ informal size		urban/ rural
OWN-ACCOUNT WORKERS	agriculture industry services	formal/ informal		urban/ rural
EMPLOYEES	agriculture industry services		high medium low	urban/ rural
RECIPIENTS OF PROPERTY AND TRANSFER INCOME PROPERTY PENSIONS OTHER TRANSFERS				urban/ rural

owner-occupied housing, domestic services, incidental production activities and unincorporated enterprises owned by members of the household other than the reference person or by the reference person as only a secondary source of income.

12. The accounting structure of the System is designed in order to describe the main stages of income distribution and redistribution: primary income, (which in the case of household covers operating surplus, mixed income, compensation of employees, net property income received), disposable income, measured after allowing for current taxes on income and wealth and other current transfers, excluding social transfers in kind, and finally adjusted disposable income, measured after allowing for social transfers in kind. The magnitudes of these three concepts of income may differ widely at the level of the overall household sector. The discrepancies between them are even greater for at least some of households, which means that in principle it is necessary to take all of them into account if one wants to give a correct picture of income redistribution. In addition, it leads to the measurement of actual final consumption and saving. The first item gives the best approximation of the total of consumer goods and services actually acquired by the various groups of households, which is necessary for assessing their living standards. On the other hand, saving approximates the change in assets available for the future, at least when destruction of assets by natural catastrophes or political events and holding/losses due to inflation are not very important. Such analyses of income call for a thorough study of transfers. In many cases, it may be difficult to observe transfers in household surveys correctly and administrative records should be used in conjunction with them.

13. The above paragraph has shown that for a correct understanding of the redistribution of income process and assessment of living conditions the complete process of redistribution has to be depicted. Conversely for other purposes more closely linked to short-term analysis of purchasers' behavior, a restricted concept of income may be required. The System provides for such a concept, called discretionary income (see Chapter...). It relates to that part of income on the use of which households have actually to take a decision.

14. Income distribution is commonly studied according to size of income. Various statistical units are used in such studies, the households or the individual or the tax cluster, depending on the data source and the kind of income in question. For analysing the distribution of compensation of employees or more narrowly wages and salaries (gross or net) the individual is used because he/she is the wage earner. In this case, the type of income and source of data lead to the same choice of statistical unit. For operating surplus and mixed income, the relevant statistical unit may be either the enterprise or the household, because in most circumstances more than one member of the household is working in this producing unit. For global concepts of income (primary, discretionary, disposable, adjusted disposable income) the household is the appropriate statistical unit. The tax cluster may have to be used if administrative data are organized that way and are the only sources of data on income, especially the only regular ones. Household surveys may be designed in order to best approximate the concept of the household as the statistical unit. They have in any case to be supplemented by other sources of data, if the picture is to be complete. Of course, when using statistical units which are not the individual in income distribution studies, it is necessary also to make calculations of income by head (or by a statistical standard like consumption units) in order to avoid misinterpretation.

15. One could think of subdividing the household sector, in the context of national accounts, by income size and of trying to establish a full set of accounts for each income bracket. This might be thought of as an alternative to the breakdown by socio-economic groups or as a complementary subdivision inside each such group or sub-group. While there is no conceptual difficulty in this approach (except in choosing the most relevant income concept), it is very improbable that it could be followed in practice. However, the size of income criterion might be used for decomposing certain items, like discretionary income or disposable income and at least part of their main components.

16. Another distinction that is widely used when studying the household sector is that between urban and rural households. The only feasible way to introduce it in the overall accounting structure is based on household survey data, adjusted in order to take into account production surveys and administrative data. The rural/urban criterion might be very usefully used for at least certain income concepts even if it cannot be implemented fully.

17. Until now, in this section, we have dealt with the disaggregation of the household sector in terms of the corresponding column in the "Integrated Economic Accounts for the Nation", and we have commented on the sequence of accounts and the redistribution process. We now look at the rows of the integrated accounts, that is to the transactions and some balancing items. A number of features of the System classifications and relevant complements are introduced. They are examined in the order of the sequence of accounts and the classifications of transactions.

18. Output may distinguish between components which are sold, bartered or destined to own-account uses, like own-account final consumption and own-account fixed capital formation, or added to stocks (the net variation of which may be positive or negative).

19. Compensation of employees (and the corresponding figures on employment) lends itself to an analysis by kind of labour (skill based on a classification of occupations, level of education, sex for example), industry of employment or location (as in the rural/urban distinction). Compensation of employees in cash and in kind may also be separated out. As already explained, the distribution of compensation of employees or, if not feasible, wages and salaries by income brackets is an important element of economic and social analysis.

20. Mixed income and entrepreneurial income may be broken down in various ways (in the case of households operating surplus refers only to owner-occupied dwellings).

21. Here again, various criteria may be used, according to industry of origin, formal or informal segments of the economy or location which have been referred to previously. In addition, the distinction between modern and traditional activities (which is not synonymous with the distinction between formal and informal activities 3/), or as an approximation between capital intensive and labour intensive activities, may be introduced.

3/ For example, formal activities in agriculture may be modern or traditional in the same country such as intensive poultry breeding or extensive cattle farming.

22. If the subsistence economy represents a significant share of a country's economy, it is recommended that this should be separated from the other informal traditional activities.

23. Consideration of mixed income shows that similar purposes may be pursued either by subdividing the column for the household sector, or distinguishing various components of certain transactions or balancing items in the rows. When the first approach is not feasible in practice, because it is too demanding in data terms, an approximation might be available by analysing only some important items in the rows. Of course, combining both approaches would permit the richest analysis, when necessary data are available or valid approximations derivable.

24. The analysis of transfers is an important part of the study of income redistribution. Data on transfers may come from household surveys and administrative records. The System includes a classification of transfers at various levels. This classification may be complemented in various ways depending on country circumstances. For example, social benefits might be broken down according to the type of risk covered (unemployment, sickness, old age, etc.). Or, in a country where the responsibility for redistributing income is still found at the level of the family, transfers between resident households and remittances from members of the family living abroad might be isolated by subdividing the miscellaneous current transfers of the classification, while using the remaining part of the latter at a more aggregated level.

25. Final consumption expenditure covers components already met above when considering output. Own account consumption at least should be distinguished from other consumption elements. If barter transactions are important in a country or a region, they might also be isolated. Another possibility is to distinguish more systematically monetary components from in kind elements. The latter will also include the counterparts of compensation of employees in kind and transfers in kind from the Rest of the World and non-government PNPI sectors. Further, the various components of non-monetary consumption transactions may be identified.

26. Own-account final consumption is equal to output destined for own-account consumption 4/ and of course compensation of employees in kind is matched by corresponding consumption.

27. Transfers in kind by government or non-profit institutions serving households have to be taken into account in order to go from consumption expenditure to actual consumption. They are of course non-monetary by definition.

28. The need for separating monetary and non-monetary transactions leads to the isolation in the capital account of own-account capital formation.

29. Apart from the capital account, the other accumulation accounts and the balance sheets may be very difficult to establish for disaggregated kinds of households, due to data problems. Studying wealth inequalities is, however, an essential part of economic and social analysis. Various statistical tools may be

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4/ Own-account consumption occurs when production and related consumption take place in the same household. It excludes items such as consumption of goods by retail traders, out of their own stocks.

used in this respect, mainly saving and wealth surveys, records on capital taxes, data on stocks of buildings and on financial assets and liabilities. Their integration in a national account framework is certainly a long term objective. However, partial analysis, depending on various circumstances and needs, may be feasible, and are very useful for complementing figures from the current accounts and the capital account. For example, estimates of real holding gains and losses on at least monetary assets and liabilities are important for assessing the effects of inflation on households. In a country where floods, earthquakes or wars destroy an important part of household assets, even a rough estimate of these destructions is highly desirable.

30. In the above paragraphs, extensive use is made of many elements of the complementary classification which are especially relevant for the analysis of the household sector.

31. The sequence of accounts for the household sector (excluding non-profit institutions serving households) with the classification of transactions and balancing items complemented by a number of additional subdivisions is presented in Table 13.2.

TABLE 13.2 INTEGRATED ACCOUNTS FOR THE HOUSEHOLD SECTOR (excluding NPI's)

ACCOUNT	TOTAL	EMPLOYERS	OWN ACCT. WORKERS	EMPLOYEES	RECIPIENTS OF PROP. & TRANSFER INCOME			TRANSACTIONS AND BALANCING ITEMS	RECIPIENTS OF PROP. & TRANSFER INCOME			EMPLOYEES	OWN ACCT. WORKERS	EMPLOYERS	TOTAL	ACCOUNT
					PROP. INC.	PENSIONS	OTHER TRANSF.		OTHER TRANSF.	PENSIONS	PROP. INC.					
								Output (1)							1420	I.
I.	422							Intermediate consumption								PRODUCTION
PRODUCTION	998							Value added, gross							998	II.1.1 GENERATION OF INCOME
	160							Consumption of fixed capital							160	
	838							VALUE ADDED, NET							838	
	190							Compensation of employees							2573	
								* * Gross wages and salaries								
								Employers' social contribution								
								Employers' actual social contributions								
								Employers' imputed social contributions								
II.1.1								* by industry of origin								
								* by kind of labour (skill,educ.,sex,age)								
GENERATION OF INCOME								Taxes on production and imports (net)								
								taxes on products (net) (2)								
	-12							Other taxes linked to production (net)								
	156							Operating surplus, gross							156	II.1.2
	664							Mixed income, gross							664	
	105							OPERATING SURPLUS, NET							105	
	555							MIXED INCOME, NET							555	APPRO-PRIATION OF PRIMARY INCOME
								* by industry of origin								
								* formal/informal								
								* modern/traditional								
	116							Property income							352	
								Interest								
								Distributed income of corporate enterprises								
II.1.2								Dividends								
								Dividends (corporations)								
								Withdrawals from income of quasi-corp.								
APPRO-PRIATION OF PRIMARY INCOME								Reinvested earnings on direct foreign investment								
								Imputed property income to insurance policy holders								
								Land rent and royalties								
	3629							Primary income, gross							3629	
	3469							PRIMARY INCOME, NET							3469	
	311							Current taxes on income, wealth etc.								
	1191							Other current transfers							1049	
	1063							Social contributions								
								Actual social contributions								II.2
								Employers' actual social contributions								SECONDARY DISTRI-BUTION OF INCOME
								Employees social contributions								
								Social contributions by self and nonemployed persons								
II.2								Voluntary social contributions								
								Imputed social contributions								
SECONDARY DISTRI-BUTION OF INCOME	3							Social benefits in cash							871	
								* * Social security benefits in cash								
								Unfunded employee social benefits								
								Social assistance benefits in cash								
								* by type of risk covered								
	125							Miscellaneous current transfers							178	
								Net casualty insurance premiums								
								Casualty insurance claims								
								Other miscellaneous current transfers								
								transfers between households								
								remittances from family members living abroad								
	3176							Disposable income, gross							3176	
	3016							DISPOSABLE INCOME, NET							3016	
								discretionary disposable income								
								disposable income in kind								

TABLE 13.2 (continued)

								Other current transfers							II.3
	9							Social transfer in kind							720	REDISTRIBUTION OF INCOME IN KIND
								Social benefits in kind								
II.3 REDISTRIBUTION OF INCOME IN KIND								• a Social security benefits, reimbursements								
								Social security benefits in kind								
								Social assistance benefits in kind								
								• by type of risk covered								
								Individualized non-market services (not incl. in social benefits)								
	3887							Adjusted disposable income, gross							3887	
	3727							ADJUSTED DISPOSABLE INCOME, NET							3727	
								discretionary disposable income								
								disposable income in kind								
								social transfers in kind from gov./NPI								
								Disposable income, gross							3176	
								DISPOSABLE INCOME, NET							3016	II.4
	3413							Actual final consumption								
	2702							Final consumption expenditure								
								purchases (net)								USE OF INCOME
								bartered consumption goods and services in kind								
II.4 USE OF INCOME								own account final consumption								
								subsistence economy								
								services of owner-occupied dwellings								
								domestic services								
								other								
								compensation of employees in kind								
								transfers in kind from non-government/ NPI origin								
								insurance service charge								
								implicit serv. charge for fin. intermed.								
	474							Saving, gross							474	
	160							Consumption of fixed capital							160	
	314							SAVING, NET							314	
	324							Gross capital formation								
	328							Gross fixed capital formation								
								Gross fixed tangible capital formation								
								purchases (net)								
								residential buildings								
								other								
								bartered capital goods in kind								
								own-account fixed capital formation								III.1
								residential buildings								
								other								
								capital transfers received in kind (net)								
								Gross fixed intangible capital formation								CAPITAL
III.1	-4							Changes in stocks								
								of which: changes in stocks of finished goods and work in progress								
CAPITAL	-160							Consumption of fixed capital (-)								
	-20							Net purchases of non-produced assets								
								Capital transfers, receivable							12	
								Investment grants								
								Other capital transfers								
								Capital transfers, payable (-)							-15	
								Capital taxes								
								Other capital transfers								
								CHANGES IN NET WORTH DUE TO SAVING AND NET CAPITAL TRANSFERS (3)							311	
	167							NET LENDING (+) / BORROWING (-)							167	
	316							Acquisition of financial assets								
								Incurrence of financial liabilities							149	
	167							Currency and deposits							0	
								of which: denominated in national currency								
								denominated in foreign currency								
III.2								of which liability of								
								resident units								III.2
FINANCIAL								rest of the world								FINANCIAL
	6							Securities other than shares							0	
	0							Loans							14[illegible]	
	13[illegible]							Shares and other equity							0	
	8							Insurance technical reserves							0	

TABLE 13.2 (continued)

	-57							Other accounts receivable/payable							7	
III.3.1. OTHER CHANGES IN VOLUME OF ASSETS								Econ. appearance of non-prod. assets (+)								III.3.1. OTHER CHANGES IN VOLUME OF ASSETS
								Econ. disappearance of non-produced assets (-)								
								Destruct. of assets by non-insurable risks (-)								
								Uncompensated seizures (+/-)								
								Adjustment of the residual val. of assets (+/-)								
								Changes in classification and structure								
								CHANGES IN NET WORTH DUE TO OTHER CHANGES IN VOLUME OF ASSETS								
III.3.2 RE-VALUA-TION								Nominal holding gains (+)/losses (-) (due to changes in actual prices)								III.3.2 RE-VALUA-TION
	295							Non-financial assets								
	190							produced assets								
	105							non-produced assets								
	301							Financial assets								
								Liabilities								
								CHANGES IN NET WORTH DUE TO CHANGES IN ACTUAL PRICES							596	
IV.1 OPENING BALANCE SHEET	10220							Non-financial assets								IV.1 OPENING BALANCE SHEET
	5670							produced assets								
	4550							non-produced assets								
	4700							Financial assets								
								Liabilities							2000	
								NET WORTH							12920	
IV.2 CHANGES IN BALANCE SHEET								Total changes in assets								IV.2 CHANGES IN BALANCE SHEET
	439							Non-financial assets								
	354							produced assets								
	85							non-produced assets								
	617							Financial assets								
								Total changes in liabilities							149	
								CHANGES IN NET WORTH, TOTAL							907	
								SAVING AND NET CAPITAL TRANSFERS							311	
								OTHER CHANGES IN VOLUME OF ASSETS								
								CHANGES IN ACTUAL PRICES							596	
								neutral revaluation							610	
								real holding gains (+)/losses (-)							-14	
IV.3 CLOSING BALANCE SHEET	10659							Non-financial assets								IV.3 CLOSING BALANCE SHEET
	6024							produced assets								
	4635							non-produced assets								
	5317							Financial assets								
								Liabilities							2149	
								NET WORTH							13827	

** indicates the first item of the breakdown in the full sequence of accounts for the household sector
* indicates a possible alternative breakdown

(1) Output can be valued a(a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

(2) The item "taxes on products, net" will only apply in cases (b) and (c), including for (b) taxes on products, net, except taxes on imports, net
(c) taxes on products, net, except VAT and taxes on imports, net

(3) "Changes in net worth due to saving and net capital transfers" corresponds to the total of the right hand side of the capital account.

Public, national, private and foreign controlled sectors

32. The classification of institutional sectors systematically includes the distinction between public, national private and foreign controlled corporations. For non-financial corporations, it appears at the second level of the classification; in the case of financial corporations, the distinction is made only at the third or fourth level.

33. This implies that the pieces composing the public sector are present in the main classifications of the System. They just have to be rearranged in order to show the accounts of the overall public sector. This is done by putting together the sub-sectors of general government and the public sub-sectors of non-financial and financial corporations. The accounts of the public sector portray the role of the public authorities in supplying goods and services to the economy and the demands on the resources for production which the public authorities make. The accounts also delineate the means of financing production, consumption and capital formation used by the public sector, its contribution to inflationary or deflationary pressures and to the external surplus or deficit and external debt. The role of the public sector in the redistribution of income already appears in the general government accounts.

34. The full sequence of accounts lends itself to the analysis of the public sector (though there may be difficulties for obtaining the data in some cases even if they normally exist for all units composing the public sector). At a minimum the production and generation of income accounts have to be studied to identify the main activities carried out by public non-financial corporations. In addition, it is advisable to establish, whenever feasible, a complete set of accounts for sub-sectors of public non-financial corporations according to their main economic activity.

35. The public sector accounts may be presented in a framework similar to the Integrated Economic Accounts for the Nation but one in which columns are shown first for the various components of the public sector, then for the rest of the national economy (the private sector). As analysts are interested in the relation of the public sector as a whole with the rest of the economy, consolidated accounts are necessary. However, in order to preserve an understanding of the System, it seems preferable to present the accounts of the public sector, first without consolidation, then after consolidation. A suggested presentation of the relevant columns is the following:

Public non-financial corporations

Public financial corporations

General government

Public sector (before consolidation)

Public sector (after consolidation)

36. As explained in Chapter II para. 19, transactions appearing in different accounts are never consolidated in order not to change the balancing items.

37. If a country is facing Balance of Payments problems, it would be extremely useful to record separately the external transactions of the public sector, if feasible (the main difficulty refers to exports and imports which necessitate a special analysis). Doing this would allow the external balance of goods and services, the current external balance and the net lending of the Rest of the World to be measured separately for the public sector and the private sector.

38. For certain analyses, narrower concepts of the public sector are useful when dealing with capital and financial accounts. They refer to the non-financial public sector (i.e., general government plus public non-financial corporations) and the non-monetary public sector (i.e., the non-financial public sector plus public financial corporations except the Central Bank and other depository institutions). Consolidated capital and financial accounts for these alternative definitions are included in a complementary table.

39. Accounting for the public sector implies interest in the accounts of the private sector. The latter covers private corporations and households. However, private corporations in turn include foreign controlled and national ones. Foreign controlled non-financial and financial corporations may be grouped in order to show their transactions separately from those of the national private sector (which covers private non-financial and financial corporations and households 5/). For foreign controlled units from the one side, national private units from the other, there is no obvious need for consolidation.

40. All these rearrangements of sectors might be shown in an "Integrated economic accounts for the Nation" type of presentation, with, for example, the following headings for columns:

Public non-financial corporations

Public financial corporations

General government 6/

Public sector (before consolidation)

Public sector (after consolidation)

Foreign controlled sector

National private sector

National economy

Rest of the World: public sector external transactions

5/ In certain countries, transactions of foreign controlled non-profit institutions serving households may be significant and should be added to the foreign controlled sector and deducted from the household sector.

6/ The sub-sectors of general government may be shown separately.

Rest of the World: private sector external transactions

Goods and services

It is understood that the private sector is the sum of the foreign controlled sector and the national private sector.

41. Of course the components of foreign controlled (non-financial and financial corporations) and national private sectors (non-financial, financial corporations and households) may be shown in such a presentation if so desired.

42. It would also be analytically useful in certain circumstances to show separately, if feasible, the external transactions of the foreign control and the national private sector respectively.

43. The intention of the above paragraphs is not to propose a choice between the latter presentation and the one in Chapter 2 where the hierarchic classification is directly used. Both types of analysis and presentation are parts of the central framework and may be used in association if relevant for a country.

44. Accounting for the public, foreign controlled and national private segments of the economy gives important structural information, such as their respective shares in value added, various income concepts and saving. Data on employment in these various parts of the economy are also very useful. Above all, such accounts allow the economic behavior and results of those sectors to be analysed in a consistent way.

45. Table 13.3 shows the integrated economic accounts for the Nation according to the public/private and national/foreign distinctions using the headings of columns listed in paragraph 40.

TABLE 13.3. INTEGRATED ACCOUNTS FOR THE NATION WITH PUBLIC SECTOR DETAILS AND NATIONAL/FOREIGN DISTINCTION

U S E S

ACCOUNTS	TOTAL	GOODS AND SERVICES (RES.)	REST OF THE WORLD:		NATIONAL ECONOMY	NATIONAL PRIVATE SECTOR	FOREIGN CONTROLLED SECTOR	PUBLIC SECTOR					TRANSACTIONS AND BALANCING ITEMS
			PRIVATE SECTOR EXTERNAL TRANSACTIONS	PUBLIC SECTOR EXTERNAL TRANSACTIONS				TOTAL AFTER CONSOLIDATION	TOTAL BEFORE CONSOLIDATION	GENERAL GOVERNMENT	FINANCIAL CORPORATIONS	NON-FINANCIAL CORPORATIONS	
I. PRODUCTION/ EXTERNAL ACCCOUNT OF GOODS AND SERVICES													Imports of goods and services Exports of Goods and services Output (1) Intermediate consumption Taxes on products (net) (3) Value added, gross/GDP Consumption of fixed capital VALUE ADDED, NET/NDP, EXT. BAL. OF GOODS AND SERVICES
....													....
IV.3 CLOSING BALANCE SHEET													Non-financial assets produced assets non-produced assets Financial assets Liabilities NET WORTH

TABLE 13.3 (continued)

RESOURCES

PUBLIC SECTOR					FOREIGN CONTROLLED SECTOR	NATIONAL PRIVATE SECTOR	NATIONAL ECONOMY	REST OF THE WORLD:		GOODS AND SER-VICES (USES)	TOTAL	ACCOUNTS
NON-FINANCIAL CORPO-RATIONS	FINANCIAL CORPO-RATIONS	GENERAL GOVERN-MENT	TOTAL BEFORE CONSOLI-DATION	TOTAL AFTER CONSOLI-DATION				PUBLIC SECTOR EXTERNAL TRANS-ACTIONS	PRIVATE SECTOR EXTERNAL TRANS-ACTIONS			
												I. PRODUCTION/ EXTERNAL ACCOUNT OF GOODS AND SERVICES
												II.1.1 GENERATION OF INCOME
												....
												IV.3 CLOSING BALANCE SHEET

READEX FICHE

Key sector and other special sector accounts

46. The system permits an integrated analysis of economic activities inside each institutional sector. For example, accounts for sub-sectors of non-financial corporations may be established by grouping enterprises or, if more meaningful, sub-groups of enterprises, according to their main economic activity. Similar analysis can be made for household production activities at least up until the point where entrepreneurial income is calculated. As production accounts exist for institutional units and sectors, as well as for establishments and industries in the case of corporations, the analysis may cover the full economic process, from production to accumulation. This may be done systematically at a given level, probably fairly aggregated, of ISIC or for a number of selected industries which are of special interest in a given country.

47. In certain cases, it is very useful for economic analysis to put special emphasis on key activities, which play a predominant role in the economy's external transactions and equilibrium in general. This is the case for the petroleum sector, mining activities or crops (coffee, for example) which account for an important part of exports, foreign exchange assets and very often, government resources too. In certain economies, banking itself is a key activity.

48. First, these key activities and their corresponding products, have to be defined, which may need items shown in distinct places of ISIC or the national classification to be grouped together. For example, accounting for oil and natural gas may cover extraction of crude petroleum and natural gas (ISIC division 11), manufacture of refined petroleum products (ISIC class 2320), transport via pipelines (ISIC class 6030), wholesale of solid, liquid and gaseous fuels and related products (class 5141) and retail sale of automobile fuel (class 5050). The extension of the key sector(s) depends on the circumstances. For example, the oil sector may have to cover petro-chemical processing or a cotton sector may include, in addition to cotton growing, the activities of spinning, weaving of textiles and garment manufacture.

49. A goods and services account is established for the key products in question, showing the resources and uses of these products. A production account and a generation of income accounts are built up for the key industries. For both activities and products, detailed classifications have to be used to fully understand the economic process and the related valuation procedures in this field. There generally exists a combination of market and administered prices, a complex system of taxes and subsidies, etc.

50. The key products and key industries accounts may be analysed in the context of a supply and use table. In this case key industries are shown in detail in columns and other industries may be aggregated. In the rows, key products are similarly shown in detail and other products aggregated. Of course, if necessary, some other industries or products may be shown separately if this is meaningful for the analysis of the functioning and transactions of the key industries. At the bottom of the supply and use table, two rows at least may be introduced for gross fixed capital formation and labour inputs; the relevant figures for key industries appear at the intersection between these additional rows and the columns for industries. In the use part of the table, columns for gross fixed capital formation and changes in stocks respectively may be broken down between key sector(s) and other sector(s).

51. Then, a set of accounts, as complete as feasible, is compiled for the key sector, which has to be delimited. In the case of oil and mining activities, the key sector generally consists of a limited number of big corporations. All transactions of the latter are covered, even when they carry out secondary activities, giving rise to secondary products. It is useful to know the nature of these secondary products, but not necessarily their destination. The distinction between public, foreign controlled or private corporations is of course fundamental when dealing with a key sector. The business accounts themselves have to be used to carry out an integrated analysis. They have to be carefully studied for each big corporation involved. Naturally the situation is not always straightforward or easy. Part of mining activities may be carried out by small corporations or even unincorporated enterprises. These units must be included in the key sector, even if it is necessary to rely on partial information coming from statistical surveys or administrative data. Fortunately, in mining activities, the latter units usually cover only a minor part of the key activities.

52. When the key activity is an agricultural one, like coffee in certain countries, the situation is more complex. Most producers are probably unincorporated enterprises which are not quasi-corporations. Ideally, the key sector accounts would include a complete set of accounts for the households that carry out these productive activities. This may be difficult to do in practice and it may be necessary to limit oneself to a partial analysis, showing only the accounts and transactions which are most closely linked with the key activity, like production, generation of income and entrepreneurial income accounts from the one side and main transactions of the capital and financial accounts from the other.

53. In many cases, government plays an important role in connection with key activities, either via taxes and property income receipts or as carrying out a regulatory activity and/or providing subsidies, so the detailed study of transactions between the key sector and general government is very important. It may be needed to complement the classification of transactions, in order to identify separately those flows which are connected with the key activity, including the relevant taxes on products. These flows may be received, in addition to the general budget itself, by various government agencies, like ministries for special purposes when allowed by budget regulations, universities, funds and special accounts, etc. This has to be shown in detail. Similarly, it is very useful for economic analysis to indicate what uses are made by government of these resources, especially of course in the case of oil when they do not go into the general budget. This calls for a specific analysis by purpose of this part of government expenditure.

54. When the key activities are based on natural non-renewable resources, like sub-soil resources, the key sector accounts have to record carefully the changes in these resources (new discoveries and depletion) in the "Other changes in volume of assets account" and their revaluation. These data are crucial for assessing correctly the economic performance of the economy in question.

55. The following Table is an example of Key sector accounts in the Integrated Economic Accounts for the Nation (see Table 13.4).

TABLE 13.4. INTEGRATED ACCOUNTS FOR THE NATION WITH KEY SECTOR DETAIL

USES

ACCOUNTS	TOTAL	GOODS AND SERVICES (RES.)	REST OF THE WORLD		NATIONAL ECONOMY	(OTHER) HOUSEHOLDS		GENERAL GOVERNMENT		(OTHER) FINANCIAL CORPORATIONS		(OTHER) NON-FINANCIAL CORPORATIONS		KEY SECTOR				TRANSACTIONS AND BALANCING ITEMS
			... ...	... ...		... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...	PUBLIC CONTROL	PRIVATE CONTROL	FOREIGN CONTROL	....	
I. PRODUCTION/ EXTERNAL ACCCOUNT OF GOODS AND SERVICES																		Imports of goods and services
																		Exports of Goods and services
																		Output (1)
																		Intermediate consumption
																		Taxes on products (net) (3)
																		Value added, gross/GDP
																		Consumption of fixed capital
																		VALUE ADDED, NET/NDP,
																		EXT. BAL. OF GOODS AND SERVICES
....																		....
IV.3 CLOSING BALANCE SHEET																		Non-financial assets
																		produced assets
																		non-produced assets
																		Financial assets
																		Liabilities
																		NET WORTH

TABLE 13.4 (continued)

RESOURCES

KEY SECTOR				(OTHER) NON-FINANCIAL CORPO-RATIONS		(OTHER) FINANCIAL CORPO-RATIONS		GENERAL GOVERN-MENT		(OTHER) HOUSE-HOLDS		NATIONAL ECONOMY	REST OF THE WORLD		GOODS AND SER-VICES (USES)	TOTAL	ACCOUNTS
....	FOREIGN CONTROL	PRIVATE CONTROL	PUBLIC CONTROL	... ...	... ...	... ...	... ...	... ...	... ...	... ...	... ...		... ...	... ...			
																	I. PRODUCTION/ EXTERNAL ACCOUNT OF GOODS AND SERVICES
																	II.1.1 GENERATION OF INCOME
																	....
																	IV.3 CLOSING BALANCE SHEET

56. The key sector accounts may be presented in the framework of "Integrated Economic Accounts for the Nation". In this case, a column or group of columns is introduced for key sector(s) and some other columns are renamed when relevant, like "other non-financial corporations" and/or "other households". Doing so makes it possible to see at a glance the respective shares of the key sector and other sectors in transactions and balancing items. Of course the precise format of such a table depends on the circumstances and the objectives pursued. In the example given in table 13.4, the key sector is supposed to include institutional units which are either foreign controlled, public or national private ones.

57. One more step may consist in showing in additional tables the "from whom to whom?" relations between the key sector and each other sector and the Rest of the World. In any case, the external transactions of the key sector(s) are essential for economic analysis and may be shown in the integrated economic accounts framework by subdividing the column for the Rest of the World accordingly as shown in table 13.4.

58. Tourism as a key sector raises special problems because tourism activities are not always easily identifiable directly as a set of producing units. For this and other reasons, tourism accounts are dealt with in the context of satellite accounts. Of course, it is possible to define more narrowly a key sector made out of institutional units which are mainly engaged in certain industries, obviously tourist in nature and to treat it directly in the central framework. This may be especially workable and meaningful in a country where tourist services are rendered mainly to non-residents, mostly in specific establishments.

59. On the model of key sector accounts, similar accounts may be built up for other special sectors which are not key sectors in the sense of para. 47, but deserve special consideration from the point of view of economic and social policy. Agriculture is often a good example in developed countries because it generates surpluses and necessitates an important amount of subsidies.

External accounts problems

60. The Rest of the World accounts provide an overall view of a country's external transactions. This view is elaborated for imports and exports where they are broken down by products and for external assets and liabilities and financial transactions in the three-dimensional tables where relations between creditor and debtor sectors are shown.

61. Countries which experience difficulties in their external equilibrium may like to incorporate further details in their national accounts in order to provide a basis for more refined analysis. It is worth remembering here what has been said above about the measurement and analysis of the external transactions of the public/private sectors and of the key sectors, which may allow the role of these sectors in the external equilibrium of the country to be analysed. Accounts for the foreign controlled sector, also referred to above, may also be of special relevance.

62. On the other hand, it is also possible to subdivide the Rest of the World account according to various groupings of countries depending on the type of relations the considered country is involved with. For example, such groupings may distinguish countries that are members of a Regional Pact, like the European

Economic Community or the Andean Pact, countries that have similar economic conditions, like OPEC countries or the main exporting developed economies, etc. The SNA does not make any specific recommendation in this respect, because the relevant subdivision of the Rest of the World accounts depends on countries themselves.

63. The analysis of imports by products and the elasticity of imports in relation to the rate of growth of GDP or changes in the rate of foreign exchange may be usefully supplemented by the study of the import content of intermediate and final consumption and capital formation. This may be done by using a variant of the supply and use table which distinguishes imported products from domestically produced goods and services in the various uses of goods and services (see Chapter VII).

64. When multiple exchange rates exist in a country, the System recommends the calculation of the global amounts of implicit taxes and subsidies such multiple rates involve. This procedure allows a better and more consistent analysis of external accounts both in national and foreign currency. However, the System keeps to the actual exchange rates used in the various transactions for converting their value in foreign currency to the one in the national currency, in order not to depart from the actual rates which have influenced the behavior of the economic agents. In addition to this, a country may find it analytically useful to calculate each transaction in national currency by using the average exchange rate. The difference, for each transaction, between the latter value and the one previously obtained when using the actual exchange rate represents the implicit taxes and subsidies attached to the specific transaction. These figures are of interest when analysing the distortions a system of multiple exchange rate implies. A country with a unique exchange rate artificially stated may find it useful to do the same exercise. The additional difficulty in this case is the determination of the exchange rate of reference since it cannot be calculated as a weighted average exchange rate in such a situation.

65. Emphasis must be put on debt stocks and transactions, when external debt problems are important. As recalled at the beginning of this section, the System provides for three-dimensional tables where transactions in financial instruments and stocks of such assets/liabilities are recorded according to creditor and debtor sectors. Even if a country does not find it feasible to elaborate these tables completely it is worth doing it at least for the Rest of the World and the counterpart sectors. Such tables may be supplemented or arranged in order to show arrears and debt reorganization, if any. The servicing of external debt covers interest which appears directly in the Rest of the World accounts and reimbursement of the principal of the debt. The latter does not appear explicitly in the financial account of the Rest of the World because only net incurrence of liabilities by the Nation is included. In such circumstances, it is necessary to record separately incurrence of new debt and reimbursement.

High inflation

66. Establishing meaningful national accounts in a country where high inflation prevails is indeed a challenge for national accounting. This is not because totally new national accounts problems arise under those conditions. In fact, the same difficulties also exist conceptually in the very common situation of creeping inflation, with low rates of changes in the general level of prices. However, when

the rates of inflation are high, the magnitude of the phenomena in question exacerbate the problems. A method of measurement which gives acceptable approximate measures in more or less normal conditions may no longer be acceptable with high inflation.

67. Basically, under high inflation the three classic functions of the currency are in trouble. The perturbation in its role as instrument of payment is minor, most transactions remaining cleared by using the national currency. However, sometimes legally, more often illegally, foreign currencies may be used partly for domestic payments. The main difficulties are encountered in the role of reserve value of the currency. This aspect is well known. When the annual rate of inflation is 500% for example, it is not advisable to keep any saving in the form of monetary assets, unless a mechanism of compensation against inflation is established explicitly through indexation or implicitly through high market rates of interest. Perhaps less obvious is the crisis of the currency as unit of accounting even for short periods of time. This aspect is of course connected with the previous one. Even within a period of one year the value, (i.e., the purchasing power) of the currency, diminishes sharply when inflation is high, with the result that the sum of the values of transactions which take place at different times of the year is not at all easy to interpret. If all transactions were evenly distributed and inflation regular during the year, it could be said that the unit of accounting is the mid-year value of the currency. However, this condition is not fulfilled in practice. This means that under high inflation flows as conventionally measured give a distorted picture of the economic structure.

68. On certain aspects, the System of National Accounts provide rules which, rigorously applied, are capable of providing correct measures. For example, rules related to time of recording transactions are essential: transactions have to be recorded at the same point of time in the various accounts in question for both transactors. Differences in the time of recording by transactors have much more serious negative effects of course when inflation is high.

69. A particular and very important aspect concerns transactions and balancing items that are measured by difference between various flows. This is the case for example for trade margins measured as the difference between sales and the purchase value of the goods which are sold (the method followed in practice being very often: sales less purchases plus changes in stocks). The correct measurement of trade margins at any point of time supposes that the purchase value of the goods sold is the price prevailing at this time, not at the time the purchase has been actually made. In other words, it means that changes in stocks have to reflect adequately the difference in value between entries to and withdrawals from stocks valued at prices at the time of entry and withdrawal, respectively. (See Chapter ... .)

70. The measurement of value added is a very important case in point every time the process of production extends over a long period of time (under high inflation "long" is usually much shorter than when inflation is low) and there is a significant lag between intermediate consumption and the recording of output (as often in agriculture where harvesting may take place even in a different calendar year). In principle, the solution for correct measurement exists in the system. It relies upon careful recording of work in progress. In effect, if intermediate consumption takes place mainly, for example, in the first part of the year, and output (harvests or, in other cases deliveries taken as a measure of output), is recorded mostly in the second part of the year under high inflation value added

will be overestimated. Since compensation of employees is recorded when due or paid the figure for operating surplus is heavily distorted. Of course, in the case of agriculture if harvests occur mainly in the first half-year and intermediate consumption in the second one, the distortion is inverted.

71. The solution, in principle is, in such cases, to record output progressively, as work in progress measured by the costs incurred. Then at the end of the process of production, the previously recorded work in progress is withdrawn from stocks after due revaluation, while from the other side the output of finished products is entered in stocks at the prices prevailing at this time. This solution shows that basically, the right rule of recording for output and stocks is the permanent inventory method, careful attention being paid to the recording of work in progress. This is true for business accounts and national accounts as well. Departures from this ideal treatment cause more significant biases when inflation is high. In practice the right solution may be difficult to apply, especially if business accounts do not provide adequate data. However, it has to be approximated as far as possible, in order to minimize distortions.

72. Applying the System's solutions referred to in the previous paragraphs is a means of trying to get correct instantaneous measures as far as it is feasible. They do not solve the difficulty existing under high inflation related to the loss of meaning of the unit of account. Rigorously, a unit of the currency at the beginning of the year is not additive with a unit of the currency in the last months of the same year. Strictly speaking, it is so every time there is a change in the purchasing power of the currency, even when the rate of inflation is low. However, under normal conditions (low inflation) it is assumed that over a short period of time (one year) the loss of significance of the currency as a unit of account is limited. For longer periods, this assumption is not acceptable and comparisons are made either at constant prices (for goods and services) or in real terms (constant purchasing power of the currency). A short period of hyper-inflation involves the same measurement problems as a much longer period of low inflation. As explained above, because transactions are not evenly distributed and inflation is not regular during the year, it may not be assumed that the implicit unit of accounting is the mid-year currency. Consequently, the economic relations are distorted. Phenomena occurring predominantly in the first part of the year have their shares understated; those which mainly take place in the last part of the year have their shares, conversely, overstated.

73. In order to avoid such distortions it would be possible to denominate all transactions using the currency at a certain point or during a short period of time (one month for example) as the unit of account. All transactions would then be revalued at the (constant purchasing power of the) currency at the chosen point or period by applying to current values an indicator of the change in the general price level. Applying such a procedure systematically might of course be burdensome, but it might be appropriate to implement it for certain flows or certain aggregates only, possibly using simplified methods of calculation.

74. Because of the difficulties in interpreting national accounts in current values, one could draw the conclusion that it is useless to establish these accounts. However, they remain necessary for use in conjunction with monetary and financial variables. Further, under such circumstances more emphasis should be given to accounts covering shorter periods of time. As monthly accounts are obviously impracticable, except for some items, quarterly accounts covering more than just GDP and its uses, would be of great value for analysis. The use of the

currency as a unit of account on a quarterly basis, while subject to the general criticism in principle, provides results which are easier to interpret than annual data, at least if hyper inflation is avoided. In addition, quarterly accounts might provide a short-cut method for determining annual accounts, using the average value of the currency in a given quarter as the unit of account.

75. Constant prices estimates, which play such an important role in national accounting in general, are given even more emphasis when inflation is high for flows of goods and services and the production account. As far as possible, it is probably appropriate to attempt to estimate volume increases directly rather than rely on deflation methods applied to current prices. In effect, the degree of approximation in the measurement of price changes may well be of the order of magnitude of the volume changes. The danger is increased when the base-period for price increases is very out of date.

76. In general, frequent rebasing of national accounts in constant prices is advisable when changes in relative prices are important. The choice of the base period, which is always a delicate one, may be especially complex under high inflation due to the fact that price adjustments are irregularly timed. Studying how relative prices move in the short, medium and long term in periods of high inflation, as compared with other periods, is of particular importance.

77. In order to assess the effects of inflation, it is not sufficient to measure current flows and flows in the capital and financial accounts of the System, because inflation may redistribute wealth and changes in real wealth due to inflation exaggerate or counterbalance changes in these flows. The revaluation account of the System is of special importance in this context, since it shows real holding gains and losses incurred by institutional sectors and the Rest of the World according to the types of assets and liabilities they hold. Calculating these gains and losses supposes of course that a country has previously established sectoral balance sheets. Doing this for financial assets and liabilities is of prime importance due to the fact that the dramatic changes in the purchasing power of the currency when inflation is high undermines its role as instrument of reserve of value. The face value of monetary assets covers a vanishing real value of these assets. For interest bearing monetary assets and liabilities (non-interest bearing monetary assets may hardly exist when inflation is high, except at the minimum level necessary for current payments), the decrease in their real value is generally compensated, at least in part, by explicit indexation or inclusion of an element compensating for inflation in the rate of interest. This means that nominal interest, under these circumstances, includes a component which may be viewed as an anticipated reimbursement/refund of the real value of the principal of the financial liability/asset.

78. The higher the rate of inflation, the quicker is this process of reimbursement/refund. This element should not be considered as a return to capital by the lender and a current cost by the borrower. The System treats these components of explicit or implicit indexation as interest received and paid in the current accounts, which does not matter very much when inflation is low, but their measurement is essential when inflation is high if one wants to interpret correctly figures such as government disposable income or saving (or government deficit) and the corresponding figures for creditor sectors, etc. For this reason, the System recommends showing real holding gains and losses on monetary assets as memorandum items to the current accounts. Countries with high inflation would benefit greatly from following this procedure and in addition, giving great emphasis to a careful scrutiny of holding gains and losses in the revaluation account.

Quarterly accounts

79. When using the System for short-term analysis, annual accounts are not sufficient because they do not generally permit the various movements of short-term trends to be followed as close as necessary. On the other hand, relying only on the analysis of short-term indicators is not considered a fully adequate alternative for various reasons. These indicators are very often incomplete in terms of coverage, and economic interrelations are not always easily understandable through them. Further, changes in annual national accounts figures and in the corresponding statistical indicators may differ. National accounts try to be exhaustive and they result from a process of trade-off and adjustment between basic data which are not fully consistent. Consequently, quarterly accounts tend to be broadly used in conjunction with short-term indicators, either current statistics or subjective business surveys. They are increasingly implemented in developing countries as well as in developed ones.

80. Of course, no country establishes the complete System, including balance sheets, for every quarter. The coverage of quarterly accounts varies very much from country to country. It consists in many cases of a calculation of GDP only, using a value added approach by broad economic categories, or a balance between GDP and its uses. At the other extreme, some countries try to cover most of current accounts and capital and financial accounts. As indicated above, when dealing with high inflation, quarterly accounts which are as complete as feasible may be a way of overcoming the difficulties of interpretation encountered with annual accounts in these conditions. Quarterly accounts for general government may facilitate the transaction from fiscal year to calendar year when the first one is different.

81. Quarterly accounts are based on intensive use of short-term statistical indicators. Some data used for annual accounts, for example, accounting data are not available more frequently. When they are, they may not be fully available in time for early estimations. However, short-term indicators should be used with precaution. Combinations of these indicators may differ than the corresponding annual national accounts figures. For instance, the annual changes of industrial output measured through monthly or quarterly surveys, which are generally limited in scope, may differ from the results of annual surveys, where establishments and products are better covered, and both may differ from national accounts which have to make estimates for the missing items, to use additional data and to check the overall consistency of the accounts. These discrepancies may be unstable over time, if for example, the coverage of a survey is modified. Consequently, short-term statistics must be adjusted when used for quarterly accounts purposes. For this reason, the most specific contribution of quarterly accounts work to national accounting is the study, generally using econometric methods, of the relationship between annual accounts figures and corresponding short-term indicators. 7/

82. Apart from deciding which parts of the System and what level of detail to use, quarterly accounts do not in general need adaptation of the conceptual framework. However, the correct definition and measurement of quarterly output requires much attention to be paid to the analysis of changes in stocks in general and work in

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7/ However, preliminary estimates of annual accounts especially when incomplete data are available, must benefit from quarterly accounts methodology.

progress in particular. The latter may have greater implications for the allocation of output between different quarters than between different years (for which it is nevertheless non-negligible). This is especially important for industries in which the process of production extends over a long period of time. In many cases output may not be at all correctly approximated by recording goods and services when they are finished. Agriculture is of course a good case in point. See paragraphs 70 and 71 above which already refer to this problem in connection with the problems of high inflation.

Regional accounts

83. Regional accounts are of special importance when there exist important gaps between the economic and social development of the various regions of a country.

84. A full system of accounts at the regional level implies treating each region as a different economic entity. In this context, transactions with other regions become a kind of external transaction. External transactions of the region have of course to distinguish between transactions with other regions of the country and transactions with the Rest of the World.

85. Three types of institutional units have to be considered in the context of regional accounts. First, there are regional units, the center of interest of which is in one region and most of their activities take place in this region. Among regional units are households, corporations all establishments of which are located in the region, local and state governments, at least part of social security and many non-profit institutions serving households. Then there are multi-regional units, the center of interest of which is in more than one region but does not relate to the country overall. Many corporations and a number of non-profit institutions are in this situation. Finally, a small number of units are national ones, which means that their center of interest is really not located geographically even in the sense of multi-regional location. This is the case of central government and may be the case for a small number of corporations (probably public), generally in a monopolistic or quasi-monopolistic situation, like the national railway corporation or the national electricity company.

86. Locating transactions of the regional institutional units does not raise any conceptual problem. These units are clearly regional resident units. Allocating the transactions of multi-regional units between various regions raises more difficulties. Even when these transactions are physically locatable, like output, it is necessary to actually value intra-company flows between establishments located in different regions. The system recommends including inter-establishments deliveries in the definition of output and this is especially important for regional accounts. A further consideration is that, part of the transactions of multi-regional units is not, strictly speaking, regionalizable, in concept. This is the case for most property income and transactions in financial instruments. Consequently, balancing items of multi-regional units may not be unambiguously defined at the regional level for multi-regional units except value added and perhaps operating surplus. This means that by definition, multi-regional institutional units may not be broken down in a number of regional institutional units. One could argue that the problem is very similar to the one of multinational corporations. There is obviously some similarity between these two kinds of enterprises. However, in the case of multinational corporations, national legislation and other considerations generally lead to establishing different legal

entities in different countries. Even if these legal entities are not fully independent and the valuation of their external transactions within the same multinational corporation are not based on true market values, these units fulfil the conditions necessary to be treated as institutional units in the System. Only foreign branches which are not established as separate legal entities are in more or less the same situation as establishments belonging to multi-regional corporations. However, in the accounts of the nation as a whole, they are few in number and play a marginal role. Conventions of measurement in their case do not have an important impact on national accounts results. In regional accounts, generally, the situation is very common.

87. The location of national institutional units raises more complex issues. In their case, breaking down their center of interest between all the regions is conceptually dubious. Those units do not seem properly regionalizable. Of course, this does not mean that many transactions they carry out cannot be located in the regions, like sales of electricity and railway services or compensation of employees paid by central government. But it is not conceptually possible to regionalize their accounts totally. For instance, interest on the public debt payable by central government may not be geographically located (even when this interest is locatable when receivable by other units). The same is true for interest on their debt payable by national corporations. This probably leads to considering the introduction, in addition to the regions, of a kind of national sector, not allocated as such between the regions. This national sector would have establishments located in the regions.

88. One may think of allocating all transactions of multi-regional units or even national units between regions according to some rules of thumb. However, this should not be considered simply as a practical approximation. It implies a conceptual adaptation of the System. The reasons which prevent including a full sequence of accounts for establishments/industries in the central framework also forbids in principle completely distributing all institutional units and their accounts between regions, which means, in principle, building up a full set of accounts for establishments.

89. These conceptual difficulties partly explain why no country establishes the complete System for every region. In most cases regional accounts are limited to recording production activities (with conceptual problems arising for locating some of them, like transportation and communication) by industry and more complete accounts for institutional sectors composed of regional units, like households and local and state government. Establishing accounts for goods and services and input-output tables by region does not raise unsolvable conceptual issues, deliveries to and from other regions being of course treated as exports and imports. However, the practical difficulties are very important in the absence of a sophisticated system of transport statistics.

90. None the less regional accounts, even with the limitations mentioned above, are a very useful tool for economic policy. Partial regional accounts may be inserted in a set of regional statistical indicators on labour participation, unemployment, poverty, etc. The greater the contrast between the regions in a country, the more useful is such a system of regional indicators including GDP per capita according to broad economic categories, household disposable income and household consumption per capita. It is up to the countries themselves to devise their own regional accounts and statistical indicators, taking into consideration their specific circumstances, data system and resources which might be devoted to this work.

Social Accounting Matrices and the SNA

91. We have seen in this chapter that the Central Framework of the System is sufficiently flexible that special purpose disaggregations or rearrangements can be incorporated within it without diverging in any way from the basic concepts and classifications of the System.

92. The accounting structure of the System as described in Chapter II provides for a full articulation of the parts of the System devoted to production, generation, distribution and use of income, accumulation and the measurement of wealth. In addition to the Complete accounts for the institutional sectors and sub-sectors, many aspects of economic life are or may be more deeply analysed. Attention to disaggregation of production activities by industry and supply and use of goods and services by type of products leads to supply and use or other input-output tables. In addition to including variants for the valuation of output and the corresponding treatment of taxes and subsidies on products in the Central Supply and Use Table, other input-output tables with different types of unit of production or methods of valuation of flows of goods and services, the distinction between domestic and imported components of uses, etc. may be constricted.

93. With respect to income, the distribution and redistribution of income is given more emphasis in this version of the System than in the previous one. The 1968 SNA was complemented by an ambitious set of "Provisional Guidelines on Statistics of the Distribution of Income, Consumption and Accumulation of Households" 8/ which however did not receive much attention. The present system incorporates many features of income and consumption analysis. In addition, as shown in the first section of this chapter, it calls for elaboration of particular aspects of the household sector when looking in detail to the latter. The household sector is disaggregated and the analysis of its transactions completed in two main dimensions, one according to characteristics related to consumption patterns and the other to income or more broadly speaking socio-economic characteristics. In this way the link between income generation, its redistribution and use for consumption and accumulation is made explicit at a disaggregated level. Other sectors may also be disaggregated in appropriate ways, as shown when looking at key and other special sector accounts.

94. Another feature of the proposed System is that it displays all the interconnections between the process of accumulation and balance sheets. These links were indicated only in broad terms in the Revised SNA and were further elaborated in a subsequent handbook 9/. These also, have been incorporated in this manual. Consequently, in addition to capital formation and financial accounts (or flows of funds analysis) which were already integral parts of the 1968 SNA, changes in volume of assets and liabilities due to other phenomena like war or political events and revaluation of assets and liabilities due to changes in prices are shown in the System. When attention is focused on balance sheets and their evolution, the various factors of accumulation are connected with the different elements of assets and liabilities in a detailed analysis of changes between balance sheets.

8/ United Nations, Studies in Methods Series F No. 61, 1977.

9/ Provisional International Guidelines on the National and Sectoral Balance Sheet and Reconciliation Accounts of the System of National Accounts (United Nations, Statistical Papers, Series F No. 60, 1977).

95. Broadly speaking most of the elements that are included in the present system were already existing in the 1968 SNA and a number of complementary systems. However, they were less integrated and the interconnections between them, even when they were part of the 1968 SNA, were less explicitly shown. This situation led to various interpretations of what the SNA was and to various practices which allowed for a narrow and rigid version of the SNA as a limited set of accounts not displaying all the interconnections of the System and lacking flexibility for application to different conditions in different countries. This poor interpretation tended to prevail when very scarce resources were devoted to the work on national accounts.

96. Solutions to these drawbacks have been sought in a number of instances through the building of social accounting matrices (SAMs) displaying the interconnections of the System, disaggregating the household sector, showing the link between income generation and consumption, etc. For these reasons, SAMs have often been advocated as planning and social analysis tools. This emphasis has sometimes given the impression that a SAM is an alternative to the SNA, whereas it is nothing more than a representation of the SNA in matrix terms using the flexibility of the System to incorporate whatever degree of detail is of special interest. The coherent view of the economy provided for by a SAM is not "like" that of the SNA, it is exactly the same view because a SAM is only a different means of presenting the same information. (See the annex to Chapter II and Annex 1 at the end of the book.)

97. The power of a SAM, as well as of the SNA, comes from choosing the appropriate type of disaggregation to study the topic of interest. Advocates of SAMs have in the past been more adventurous in exploiting the flexibility of the System than some regular compilers of National Accounts. It is the aim of this book and especially of this chapter to show the advantages of applying such flexibility as a regular part of compiling some or all aspects of the accounts, whether the presentation used, is a full set of accounts or an equivalent comprehensive matrix.

CHAPTER XIV: SATELLITE ANALYSIS AND ACCOUNTS*

Introduction

1. The central framework of the SNA presents a number of characteristics which give it the advantages of an integrated accounting structure. It is exhaustive and consistent within the boundary of the economic activities it covers, that is to say each unit, transaction, product, purpose is given a place, and only one, in the classifications and accounts of the System. Moreover, the set of concepts retained by the System is fully coherent.

2. The counterpart of these benefits is the existence of certain limitations as to what may be accommodated directly in the central framework. Of course, the central framework may be used in a flexible way, as explained before (see Chapter XIII), in order to put more or less emphasis on specific aspects of economic life, like the public sector, the households, or high inflation. However, the margins of flexibility allowed by the central conceptual framework do not permit to cover at the same time conflicting approaches.

3. As already indicated in the Manual, the SNA does not pretend that the categories it includes are in all cases the only right ones. Additional or different requirements make necessary to develop complementary or alternative categories and concepts.

4. The objectives of the present chapter are threefold. Firstly, it indicates briefly what kind of variants are or could be thought of in general when allowing for additional degrees of freedom. The approaches referred to may lead to various types of solutions, from just introducing some additional figures to redesigning more drastically the main concepts and economic results of the central framework. Secondly, the chapter presents a framework for functionally oriented satellite accounts, the ambition of which is somewhere in between the two extreme kinds of solutions mentioned above. Such a framework is exhaustive in a given field, not for the economy as a whole. In this field it is self-consistent and provides for a conceptual integration. The conceptual framework of a functional satellite account includes at the same time many features from the central framework and a number of additional ones which are necessary in order to give a more suitable picture of the field in question. Thirdly, a section is devoted to environmental accounting in a SNA Satellite accounting framework (this section to be added later on).

5. Satellite accounts or systems generally stress the need to expand the analytical capacity of national accounting for selected areas of social concern in a flexible manner, without overburdening or disrupting the central system. Typically they allow for the:

- Provision of additional information on particular social concerns of a functional or cross sector nature,

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* Draft reviewed by the Expert Group on SNA Co-ordination and revised by the author but not reviewed again.

- Use of complementary or alternative concepts when necessary for introducing additional dimensions to the national accounts conceptual framework; this includes also the use of complementary and alternative classifications and accounting frameworks,

- Extended coverage of costs and benefits of human activities,

- Further analysis of data by means of relevant indicators and aggregates,

- Linkage of physical data sources and analysis to the monetary accounting system, and

- Linkage of specialized information system in specific economic, social or natural fields to each other and to national accounts.

6. In this section, a step-by-step instrumental approach is followed in order to illustrate as a matter of examples various ways of broadening the analyses. Production and products, factor income and transfers, uses of goods and services, assets and liabilities, purposes as well as aggregates are considered in turn.

SECTION 1. SATELLITE ANALYSIS

Production and products

7. Within the production boundary of the central framework of the SNA, producing units are establishments classified according to their principal economic activity or, in a more refined analysis, homogeneous units of production, both kinds of units being classified following ISIC.

8. When establishments, and consequently industries, are not homogeneous at a given level of the activity classification, they conduct at the same time a principal activity and one or more secondary activity. The output of these secondary activities is identified according to its nature, following a product classification, but the inputs of secondary activities are not separated out from the ones of the principal activities. The production accounts of the principal and secondary activities are integrated, their outputs are not. Ancillary activities on the other hand are not at all analysed and classified according to their own nature, but depending on the activities of the establishment(s) they serve. This means that ancillary activities are not fulfilled by distinct producing units and the related products do not appear as autonomous products.

9. When focusing attention on certain kinds of activity and products, it may be useful to separate out secondary from principal activity, in order to get a full picture of the inputs (intermediate and factor inputs) corresponding to the activity we are interested in. This aspect is well known in input-output analysis. In addition, it may be necessary to identify inside the producing units some ancillary activities and their output.

10. Let us take the example of transportation. The output of transportation activities in the central framework covers only transport services rendered to third parties. Own account transportation is treated as an ancillary activity, its inputs are just unidentified components of the costs of the producing units it

serves. If one wants to get a broader picture of transportation activity, at least own account transportation of producing units, a very important internal function indeed, has to be identified and measured.

11. Looking at health activities, it may be noticed that some of them also are treated as ancillary activities, like the medical facilities provided on the spot by employers to their employees. So the cost of many activities includes an unidentified health component. The same happens with in-house staff training which is not recorded as education activity.

12. More generally inputs of producing units cover at the same time the direct cost of making up the principal and secondary output and the cost of various internal functions which are, at various degrees, indirect components of the total cost, like in addition to the above-mentioned activities electronic data processing, accountancy, trade. For some purposes, it may be necessary to identify some of these activities.

13. So, if we are interested, within the production boundary of the central framework, in a complete coverage of certain activities and products, we have a number of steps to take:

(1) To take the establishments, or the homogeneous units of production, the principal or the single activity of which is the one we are interested in; the choice between these two types of units may depend on the objectives that are pursued and the actual structure of the economy;

(2) If we are dealing with establishments, to take the relevant secondary output of establishments, the principal activity of which is not the one we are interested in;

(3) To identify the relevant ancillary activities and to measure their output, presumably by its cost in general.

14. In many cases like for health, education, housing and transportation, this process is straightforward, because the activities and products we are interested in appear as such in the classifications of the central framework, although of course additional data are necessary as regards 3. The relative magnitude of 3 may naturally differ from one activity to another, being more crucial for transportation or informatics than for education for instance.

15. However, in some particular but very important cases, like tourism and environmental protection activities, the process of identification is much more complex, because the relevant activities and products appear only to a small extent in the central framework classifications.

16. Tourism activities are not defined basically in the same way than other economic activities generally are. In the latter case, an output is identified according to a list of products which are observable as such, independently of the use that is made of them. This occurs also in part for tourism: the services rendered by travel agencies or hotels are typically tourism products. In general, however, tourism activities are defined by taking into consideration the fact that the goods and services they produce are delivered to tourists, that is people who spend at least one night outside their home, whatever the purpose of their travel. So, long distance transportation is clearly a tourist activity, short distance

transportation may or may not be, depending on who is using it. The same for cafés and restaurants and more generally various shops in tourist areas. Of course the problem may be simpler in a country where tourist services are rendered essentially to non-residents, mostly in specific establishments. It also happens that some activities, though clearly tourist in nature, are isolated only at very detailed levels of classifications, for which national accounts or even basic statistics are not commonly available, or not isolated at all.

17. Consequently, delineating tourism activities may raise a lot of difficulties. The approach is in most cases an indirect one, starting from analysing the structure of tourist expenditure by product and looking at what activities are delivering these goods and services.

18. The case of environmental protection activities and products is even more complex. Some establishments are specialized in the production of such services for delivery to other units (e.g. waste disposal, sewage treatment) or of goods which are used for environmental protection like filters. Others have only part of their activity directed to delivering to third parties goods and services which are used for environmental protection purposes. Moreover, an important part of environmental protection activities is internal to establishments, they are ancillary activities in the central framework and have to be externalized if one wants to measure more broadly the environmental activities. Again the purpose of the expenditure has to be considered in conjunction with the kind of activities fulfilled and goods and services used. So, environmental protection may not be defined exclusively in terms of specific activities and products. The purpose of the expenditure, the program in which the latter is included, has to be taken into account.

19. The above-mentioned reanalysis takes place in the limits of the central frameworks boundary of production. For certain objectives, however, the production boundary itself may be removed. This can be done in a rather global way, for example by including once for all services rendered by persons to other members of their household or/and voluntary work performed by people in various institutions. It may also be done in specific contexts when trying to get a very broad picture of a given activity. For instance, in order to make an overall estimate of the transportation function in an economy, it might be useful to cover transport services rendered by households using their own car and to try to value the time people spend when using transport facilities. Also raising children and attending schools may be valued when trying to measure human capital, voluntary work in hospitals when measuring health activities, etc. Generally speaking, the scope of non-market activities may be extended considerably.

Income

Factor incomes

20. Of course, when the production boundary is extended, as mentioned above, the magnitude of factor incomes is increased, income being imputed for the additional activities which are inserted within the boundary of production.

21. Additional analyses are also possible. For example, one may try to elaborate the mixed income or entrepreneurial income of the household sector in order to try to separate out an element of return to labour and an element of return to capital.

22. In conditions of inflation, specially high inflation (although the conceptual problems are of the same nature whatever is the level of inflation), it may be judged that nominal interest are not a convenient measure of the return to lent funds. Nominal interest include an implicit or explicit (in case of indexation) component as a compensation for the change inflation occasions in the real value of monetary assets and liabilities. This component may be analysed as a holding gain for the borrower and a holding loss for the lender, not as an element of property income. When high inflation prevails, the order of magnitude of this holding gain/loss is several times what the real property income component of interest amounts to.

Transfers and disposable income

23. The central conceptual framework contains a number of types of transactions qualified as transfers. In addition, other kinds of transfers may be delineated, if meaningful.

24. First, transfers may appear in relation with ancillary activities when these activities are externalized, specially when their output is allocated to final consumers. Transfers internal to units may also cover the counterpart of the cost of production of non-market services produced by government when it is relevant for analysis to distinguish the producing and the financing functions of government.

25. Second, implicit transfers may be made explicit. Implicit transfers refer to influences between units which change the situation in both sides without any flow being treated as imputed transfers in the central framework. For instance, tax benefits try to measure the advantages or disadvantages economic units incur as a consequence of tax legislation by reference to a kind of average situation. Another, simpler example is the case of non-market services provided free of charge by government units to market producers. In the central framework, these services remain included in collective consumption of government. If a further analysis leads to treating them as an addition to intermediate consumption of market producers, a counterpart should be introduced, preferably in subsidies linked to production. This type of approach may be made systematic with the purpose of measuring all types of transfers between government and particular sectors, like agriculture or industry. The implicit benefits resulting from tax concessions, equity participation, soft loans, differential exchange rates, differential domestic prices, etc. may then be added to subsidies, other current transfers, or capital transfers embodied in the central framework data.

26. Externalities may give rise to a wide range of implicit transfers, when trying to depict and value advantages/disadvantages that are not accounted for in the value of monetary transactions between economic units or that result of actions of these units in absence of any monetary transaction. Environment of course gives rise to many external effects. For example, pollutions and nuisances created by producers may have negative effects on final consumers. These negative effects might be estimated, not very easily of course, and recorded as negative transfers from producers to households. In order to balance these negative transfers, one possibility might be to introduce a concept of production of externalities which would result in an output of negative (eventually positive) services and the corresponding final consumption. This example shows that the concept of implicit transfers may be linked in some cases with enlarged concepts of products, income

and consumption. Of course, if the polluter actually did compensate for the nuisance occasioned, what he paid is already included as a positive transfer in the central framework.

27. Thirdly, transactions which appear in the "Other changes in volume of assets account" and the "revaluation account" of the central framework are candidates to enlarged concepts of transfers and disposable income. One could think to treating all these transactions as enlarged current transfers. The balancing item of the "Other changes in volume of assets account", that is "changes in net worth due to other changes in volume of assets", and the item "changes in real net worth due to changes in relative prices" of the revaluation account, would then appear as an extraordinary (disposable) income, subsequently as an extraordinary saving. In this hypothesis the resulting enlarged disposable income would approximate more closely the ex post Hicksean income concept. Enlarged saving in effect would then become equal to changes in real net worth less net capital transfers received (if the latter were treated as if they were current, the approximation would be even closer).

28. However one may think of making only some step(s) in this direction in order to introduce, according to various purposes, only partially extended concepts of income. For instance, a country engaged in a war might find it useful to estimate an additional concept of disposable income by taking into account war destructions. In countries where financial investment is developed and holding gains or losses on financial assets/liabilities are significant, real holding gains and losses on financial assets and liabilities could be added to disposable income in order to derive a broader measure of income.

29. Naturally, changes in factor incomes of the type described above will also result in adjusted figures for disposable income. One possibility in that context is to adjust the latter only for the component of nominal interest, which compensates for inflation.

Uses of goods and services

30. The coverage of uses of goods and services, either for intermediate or final consumption or capital formation obviously may change as a result of enlarging the concept of production. If services rendered to each other by members of the same household are included in production, they are finally consumed. If externalities are thought of as services (positive or negative ones), they enter intermediate or final consumption.

31. The borderline between intermediate, final consumption and capital formation may also be modified in various ways. Two typical cases refer to human capital and consumer durables. When final consumption in education and health is, at least partly, treated as fixed capital formation in addition to breeding children, attending schools, etc. - the corresponding central framework transactions pass from consumption (mainly final, partly intermediate) to fixed capital formation which results in human capital assets. A less radical way of looking at the same phenomenon is to capitalize only actual expenditures on education (eventually part of expenditures on health) as intangible assets, so extending the scope of the latter.

32. Of course, the concept of consumption of fixed capital would consequently be extended, which raises rather complex issues.

33. An alternative treatment to the inclusion of expenditures on consumer durables, except houses, in household final consumption is to put them when related to consumer durables used as fixed assets like cars and furniture, in fixed capital formation. Their value is then allocated upon time and only that part which is estimated as consumption of fixed capital enters final consumption. Strictly speaking this procedure implies enlarging the concept of production to include household services. Consumer durables used as stores of wealth are already reintroduced in household balance-sheets in the central framework, through an entry made in the "other volume changes in assets accounts". It would be possible in a satellite analysis to exclude their net purchases from final consumption expenditure and to record them directly in the capital account of households.

34. As a consequence of changes considered in paragraphs 31 and 33, the concept of saving is extended.

Assets and liabilities

35. The scope of assets, either tangible or intangible ones, is modified as a consequence of extending the concept of production or modifying the borderline between consumption and capital formation, as indicated in the previous paragraphs.

36. The scope of financial assets and liabilities also may be broadened by including contingent assets and liabilities in the classification of financial instruments. This modification in fact would be simply a formal one presumably as equivalent amounts would be included both in the assets and liabilities side of each sector involved, unless the present value of the net risk taken is estimated and recorded under, for example, other accumulation transactions.

37. The scope of non-produced assets recorded in the balance sheets might be extended to other natural assets. In the central framework natural assets are included in balance-sheets only to the extent that they are appropriated and utilized for economic production activities. Of course, these criteria would apply to some additional natural assets if the services provided by the latter were to be included in an enlarged concept of production. Moreover, attempts might be made to cover more widely natural assets, even when not in close contact with economic activities, in order to account for the natural patrimony in general. In most cases, however, measurement is then feasible presumably only in non-monetary terms.

Purposes

38. In the central framework, the analysis by purpose is applied only to most transactions of general government and non-profit institutions serving households and to final consumption and some other transactions of households.

39. This approach may be extended in order to cover a broader range of transactions and transactors. For example, as seen above when discussing production and products, a more thorough analysis of producers' activities leads to a functional analysis of the inputs of producing units, in relation with the

identification of ancillary activities. Such a functional analysis of the interval activities of producing units may be done systematically.

40. Moreover, the functional approach may be more flexible than it is in the central framework.

41. In the classifications by purpose used in the central framework, headings at a given level are mutually exclusive. A transaction classified under education may not at the same time be classified under health, etc. In some cases, the inconveniences which may result from this rule when focusing attention on one given purpose are minor ones, because the missing pieces cover only a small portion of the expenditures related to this purpose. However, this part may be significant. In particular cases, purposes we are increasingly interested in nearly do not surface at all, in the existing general classifications, because priority is given for historical or substantive reasons to the analysis of other purposes. For example, beside the fact that tourism as such does not appear as a main category in the "classification of household goods and services by object", it is not even possible to reassemble the necessary pieces because not all of them are exhibited in the classification. The case of environment is similar as regards the above referred classification and the classification of functions of government (COFOG).

42. This situation reflects basically the fact that a given action or program or group of transactions may be looked at from various points of view and corresponds to pursuing more than a single purpose. Consequently when giving emphasis to a particular purpose, a reclassification of a number of transactions is in many cases necessary. All programs or transactions related to environmental protection may thus be identified and grouped into a specific purpose classification. The same for tourism, education, health, etc. Such specific classifications have to be designed for covering in a consistent way the various units concerned: market producers, government and non-profit institutions, households as consumers. Of course, once reorganized that way, transactions classified by purpose are no longer additive since some of them may appear at the same time under education and health, defence and health, environment and agricultural or energy affairs, transport and tourism, etc.

Aggregates

Changes in the main aggregates shown in the central framework

43. A number of the above-mentioned complementary or alternative analyses may modify directly or indirectly the main aggregates as shown in the central framework. Examples of direct modifications are the increase in output, value added and final consumption when household internal services are included within the boundary of production, or the increase in fixed capital formation if human capital is considered an economic asset. Other aggregates are indirectly modified: saving in the latter case, disposable income in the previous one.

44. Accounting for the use of natural resources and changes therein, like subsoil mineral deposits, might also lead to the measurement of complementary or alternative aggregates.

45. In fact, in those and similar cases, a new system of national accounts is explicitly or implicitly rebuilt, as the alternative aggregates might be introduced in a differently conceived central framework. Economic literature provides many examples of such an approach.

Introduction of aggregates by purpose

46. In other types of analysis, the objective is to focus attention on one specific field of concern, like education, tourism, social protection, international co-operation or the protection of the environment. Some parts of the central framework have to be reorganized in order to give more prominence to this special field. Elements that change some concepts and aggregates of the central framework may be introduced, but this is not the primary intention, nor is it either to give a different picture of the overall economic process.

47. Looking at aggregates in that approach, one may like to define and measure one or more aggregates which would permit to catch at a glance the magnitude of the resources an economy is devoting to the concern in question. In some cases, the functional analysis of the central framework provides directly figures that are very close to the ones we are in search of. As to defence, for instance, the sum of collective consumption and capital formation corresponding to that purpose in general government accounts will normally give what we want to know, if these accounts are correctly established. This means that national expenditure on defence is obtained directly as a part of national expenditure. Here the problem is easy to solve because only one institutional sector is involved and the object concerned appears as a specific heading in the classification of functions of government. 1/

48. In most cases, however, more that one sector is concerned and the classifications which are used do not exhibit directly the items we are interested in. In addition, the required aggregate is not necessarily made out of only final consumption and capital formation. A broader concept has therefore to be specifically defined, in order to cover all aspects of the national expenditure in the field of social concern which is considered. This is further elaborated in section 2.

Other aspects

49. The elements reviewed in this section are just examples destined to illustrate various ways and means of extending national accounts work. They do not attempt to cover systematically all kinds of complementary or alternative solutions. For instance, different methods may be used for valuing economic flows; as well as assets and liabilities. Some of them are included in the central framework. Others may be considered more broadly in satellite analyses, like opportunity cost

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1/ Of course, even in this simple case, one might argue that a full picture of defence expenditure would necessitate to include other elements like the opportunity cost of conscripts and volunteers, some expenditures related to internal order, research on military objectives carried out under non-defence headings, etc.

or the net present value. The labour content of flows of goods and services may also be studied. The analysis of what is the real economic significance of certain arrangements may go far beyond appearances: like for instance in the case of advertising expenditures by businesses that highly support newspapers and TV programmes. In order to exhibit household consumption, households may be supposed to be compensated by an imputed service charge for the time and attention they provide when reading or looking at advertising, and then to consume an amount of communication services which is increased accordingly.

Subject-matter approach

50. In this section, an instrumental approach has been followed. Various substantial issues have been touched upon as a matter of examples. This permits to see the connections between the instrumental approach and the substantive issues people are generally more familiar with. Actually an important economic literature exists on research work done beyond standardized national accounts, but using a national accounting approach. It covers topics like estimates of the value of housework and do-it-yourself activities, introduction of the concept of human capital, environmental accounting, tentatives to define and measure economic welfare including sometimes valuing leisure time, introduction of all-embracing concepts of assets and the related services, accounting for health, education or tourism, etc. Of course, those studies are often overlapping because for instance human capital is a part of a fully enlarged concept of assets or estimates of housework are also done when trying to measure economic welfare, etc.

51. Broadly speaking two types of works may be distinguished as to their relation with the central framework of the SNA. Some additional constructs involve a certain amount of rearrangement of central classifications and the introduction of complementary elements which may represent differences with the conceptual central framework, like the identification of the output of ancillary activities, without drastically diverging from the set of concepts on which the central framework is built up. They are not based on alternative concepts, even when they use some on a complementary basis. This first type of studies covers mostly accounts specific to given fields like education, tourism, environmental protection expenditures generally known as satellite accounts. Introducing their content in the central framework would overburden the central system and would not be totally possible; doing it in a specific, satellite, accounting framework allows in addition margins of flexibility which could not be accommodated in the central framework itself. The second type of works is mainly based on alternative concepts to the ones of the SNA. Depending on the kind of work undertaken, a different production boundary, enlarged concepts of consumption and capital formation are introduced, the scope of assets is extended, the borderline between economic phenomena as covered by the central framework and natural phenomena is displaced, the links between income and wealth are put in the context of a broader concept of wealth, including natural patrimony, etc. A number of alternative concepts are generally used at the same time. This second type of works may also involve, as the first one, changes on definitions or classifications. However, the main emphasis is put on alternative concepts. Using those alternative concepts may give rise to partial complementary aggregates, the purpose of which is to supplement the central system. Various efforts are also made for including all or some of them in an alternative system of national accounts.

52. The second type of research work referred to in the above paragraph is evidently more controversial than the first one. In any case, it makes important contributions. It permits to extend national accounts work beyond what is, or perhaps might be, included in the central system of the SNA. It provides results useful for economic analysis. It experiments new concepts and methodologies, with of course a margin of freedom much wider than in current national accounts work. This research work may influence the development of central national accounts themselves. It is not intended to make in this manual any kind of standardized recommendations as to this type of work, which has by definition to remain open.

53. On the other hand, the work already done in accounts directly called satellite accounts - the first type of research work referred to in paragraph (51) - refers to a family of satellite accounts whose common feature is an extension of the functional approach. For these functionally oriented satellite accounts it is possible to propose an accounting framework which could be used as a reference by people intending to built up such accounts. This is done in the following section, while the next one deals with environmental accounting which, due to its fundamental importance, deserves special consideration.

SECTION 2. A FRAMEWORK FOR FUNCTIONALLY ORIENTED SATELLITE ACCOUNTS

54. From the previous section, it becomes clear that satellite analysis may apply to various aspects of national accounts and pursue different objectives. As a consequence, it is not possible to propose a ready-made satellite framework which would fit all cases. People may like to build up only an additional table (on housekeeping services for example), and call it a complementary or a satellite table or module, or a set of such tables. They may also make more steps and introduce such additional or alternative constructs in a presentation identical or similar to the one of the central framework, so providing a different picture of the overall economic process. They may also concentrate on one field and try to give a full picture of it, in a systematic way, by establishing a specific accounting framework, articulated with the central framework.

55. As regards its relations with the latter, such a specific, satellite framework does not aim at covering all economic life, it is a self-consistent framework in a partial domain. Escaping from some constraints of the central framework which is mainly institutional in nature, a satellite framework or account is by hypothesis more functional. Of course in the central framework there is already an important dose of functional approach. Institutional units are grouped into sectors according to the main economic function(s) they perform: market non-financial production, financial intermediation, non-market production and redistribution, consumption. The analysis of production activities according to their market or non-market characteristic and by kind of economic activity is also in a certain sense a functional one.

56. Taken in the restricted sense retained above (a satellite framework specific to one field of concern) satellite accounts put more emphasis on the functional point of view. They do it by combining an extension of the kind of activity and product analysis and a generalization of the purpose approach. From here it is possible to try to design an accounting framework which covers a wide variety of cases, all of them belonging to a family of functionally oriented satellite accounts. Such accounts are relevant for many fields, like culture, education,

health, protection, tourism, environmental protection, research and development, and to development, transportation, informatics, housing, communications, etc.

Scope of a functionally oriented satellite account

57. If we want to analyse in depth a specific field and in the same time get the possibility of calculating some significant aggregates like national expenditure, the starting point is an analysis of the uses, which corresponds to the question "how many resources are devoted to (education, transportation, tourism, environmental protection, informatics, etc.)" or, identically, "how much is spent on (education, transportation, etc.)?". In order to answer this question, we have to decide upon:

- the goods and services that are considered specific to this field; national expenditure includes the uses (current or capital) of these specific products;

- the activities for which we will record fixed capital formation and purchases of land, etc. ...;

- the transfers which are considered specific to this field; of course they will be included in national expenditure only to the extent that they do not serve to acquiring goods and services already included. In the latter case, they will be analysed only in relation with financing.

58. Depending on what field is considered, the main emphasis in elaborating a given satellite account will be put on the detailed analysis of the production and uses of the specific goods and services (e.g. research and development or transportation) or on the detailed analysis of transfers (e.g. social protection) or both aspects will be given equivalent weights (e.g. education and health) or the uses as such will remain at the centre (tourism, environmental protection).

59. When units which are the users, as actual consumers or investors, and units which ultimately bear the expenses coincide, figures for users tell us who finally bears the expenditure. This is the case normally for informatics and to a large extent transportation or tourism. On the other hand, ultimate users and ultimate bearers of the expenses may often differ, like for education and health. In these cases, analysing the way the uses are financed is very important. Of course, when transfers represent, all or the main part of national expenditure, this analysis is even more crucial. As a consequence, when units which bear finally the expenditure and units which benefit from it differ, the analysis of uses/users/beneficiaries tells us much about the redistribution of income in the economy.

60. Analysing in detail who are the users, consumers, investors, transfer recipients is thus an important part of what can be done in a satellite account. Even if the aggregate in question is called national expenditure the users in this context are the units which actually acquire the goods or services (for actual final consumption, intermediate consumption or capital formation) or receive specific transfers which are not intended to finance these acquisitions of goods and services.

61. Finally, as we focus attention on one field, it is useful and possible to associate non-monetary figures to the monetary ones. Non-monetary figures relate to producing units and factors of production (labour, various kinds of assets) and users/beneficiaries.

62. In short a satellite account in a given field covers the analysis of uses or benefits out of the national expenditure, production and its factors, transfers and other ways of financing the uses, both in value terms, and when relevant, in physical quantities.

Uses/national expenditure

63. The field of a given satellite account is essentially delimited by defining the content of the various types of uses to be included in the specific aggregates relevant to this field.

64. Table 14.1 shows the components of national expenditure. It is convenient to define and measure in first instance uses of resident units. However, uses of resident units may be financed partly by non-resident units. This part has to be deducted in order to get a total that corresponds to the effort a nation is making in a given field out of its own resources.

Components of uses/national expenditure

65. The first step is to define the goods and services that are considered specific in this field. It is convenient to distinguish two types of specific goods and services in this context: characteristic goods and services and connected goods and services. The first category covers the products which are typical for the field in question. We are interested in studying the way these goods and services are produced, what kinds of producers are involved, what kinds of labour and capital goods they use, the efficiency of the production process and, hence, of the allocation of resources. For example, for health characteristic products are health services, public administration services, education and research and development services in health; for education they are education services, public administration, research and development services in education; for tourism, hotel and restaurant services, long distance transport services, travel agencies and tour operator services, etc., to the extent that they are rendered to tourists; in the field of informatics, characteristic products are well known, they cover for instance computers, software, electronic data-processing services, etc.

66. The second category, connected goods and services, includes products in the uses of which we are interested because they are clearly covered by the concept of expenditure in a given field, without being typical, either by nature or because they are inserted in broader categories of products. In health for example, transportation of patients may be considered connected services; also pharmaceutical products and other medical goods, like glasses, are very often treated as connected goods and services, as they are inserted in chemical products. Books and other school supplies, school buses are considered connected products in the field of education. For tourism, purchases of food tourists may make in shops are clearly connected goods. For these connected goods and services, we are not primarily interested, when studying a given field, in their conditions

TABLE 14.1. Components of uses/national expenditure

COMPONENTS OF USES/ NATIONAL EXPENDITURE	TOTAL
	---------
1. Consumption of specific goods and services	
1.1 Actual final consumption	
1.1.1. Market products	
1.1.2. Non-market products	
1.1.2.1. Individual	
1.1.2.2. Collective	
1.2. Intermediate consumption	
1.2.1. Actual intermediate consumption	
1.2.2. Internal intermediate consumption	
2. Capital formation in specific goods and services	
3. Fixed capital formation of characteristic activities in non specific products *)	
4. Specific current transfers (not counterpart of item 1)	
5. Specific capital transfers (not counterpart of item 2 or 3)	
Total uses of resident units	---------
6. Current uses of resident units financed by the rest of the world (less)	
7. Capital uses of resident units financed by the rest of the world (less)	
National expenditure	---------

*) and their net purchases of land and other non-produced assets

of production. If we were, these products would have to be treated as characteristic goods and services. For example, pharmaceutical products might be considered characteristic in the account for health of a country at a first stage of developing a domestic industry. The precise borderline between characteristic and connected products depends on the economic organization in a given country and the purpose of satellite accounts.

67. The economic activities providing the two types of specific products are given a different treatment in a satellite account, as explained later on.

68. Specific goods and services generally appear at various levels and (or) in various headings of the product classification used in the central framework. The headings in question are regrouped and additional details are introduced in order to build up the classification specific to a given satellite account. However, in order not to conflict with the requirements of statistical co-ordination, this specific classification remains strictly linked to the central classification of reference.

(To insert a paragraph on the classification of specific health products, if feasible.)

69. Some services may appear in the specific classifications of two or more satellite accounts. For instance, research in health services in higher education institutions are at the same time specific products of research and development, education and health. This is possible because in a satellite account we do not try to cover the whole economy. Of course if aggregation of national expenditure in different fields had to be considered, double counting should have to be avoided.

70. Items 1 and 2 of the uses/expenditure table relate to uses of the specific goods and services. Item 1 is consumption of specific goods and services. It covers actual final consumption and intermediate consumption. Actual final consumption is defined in the same way as in the central framework. Market and non-market products are distinguished and for the latter individual and collective consumption also. The amounts are the same as in the central framework, unless the boundary of production is changed (for example by including voluntary work in education and health). Intermediate consumption has generally a broader coverage than in the central framework, as the output of the relevant ancillary activities is isolated. As a consequence, it covers (actual) intermediate consumption as defined in the central framework and internal intermediate consumption. In some cases, like transport services, the last component may be important in size. Sometimes, it could be considered that this internal intermediate consumption is finalized and added to actual final consumption, like in the use of ancillary education and health services, thus broadening the scope of household actual final consumption.

71. Item 2 is capital formation in specific goods and services. In an account for housing, it covers fixed capital formation in residential buildings. In an account for informatics, it includes fixed capital formation in tangible (computers, etc.) and intangible (softwares) assets. For research and development, item 2 relates to the full body of research and development services, no consumption of the latter

being considered in the System. 2/ In education and health, item 2 is empty if the related services are all included under consumption as in the central framework. Of course, if part of these services were in a satellite account treated as capital formation, the corresponding uses would appear under item 2.

72. In addition to fixed capital formation, item 2 covers changes in stocks if it is relevant. It may be so when specific goods are involved. As far as specific services are concerned, changes in stocks may relate to work in progress for instance in softwares or some tourism services like input costs already incurred in the preparation of tours not yet sold.

73. The definition of item 3, fixed capital formation of characteristic activities in non-specific products and their net purchases of land and other non-produced assets is a bit more complex.

First, it does not cover the total fixed capital formation of these activities because the part of the latter made out of specific product is already included in row 2.

For example, in the case of informatics computers are specific products and capital formation in computers by all activities is recorded in row 2. At the same time, computers are entering the fixed capital formation of characteristic activities but they may not be counted again in row 3.

Second, when in a satellite account as it is generally the case, characteristic and connected goods and services are distinguished, only the fixed capital formation of activities whose output consists of characteristic goods and services is considered in item 3. The reason for doing so is that we are not so much interested, for instance when dealing with education expenditure, in the fixed capital formation of (school) book publishing enterprises, or when dealing with health expenditure in the fixed capital formation of pharmaceutical enterprises. If we were, and it may be so in certain circumstances, the products and activities in question would have to be considered characteristic.

Ideally, characteristic activities have to be homogeneous ones. However, if establishments are used in practice, they may cover some secondary activities. In such circumstances, item 3 may be a bit broader in scope than it should normally be.

The last element of item 3 (net purchase of land and other non-produced assets) refers mainly to land. The acquisition of land may be important in such cases like education, beach, tourism, housing. Other non-produced assets, like antiques, would be significant in the case of cultural expenditures.

74. Item 3 covers for example fixed capital formation in schools, hospitals etc. depending on the field under consideration. Of course, this fixed capital formation may be studied using a classification of capital goods adapted to each satellite account, generally by detailing the classification of reference in order to show for instance various kinds of medical equipment goods, educational structures, etc.

2/ Based on the Frascati Manual, the Satellite accounts for R & D generally do not cover general administration of R & D. A different choice might be made. In this case, something would appear under collective consumption.

75. The approach followed until now when defining the content of items 1 to 3 is relevant for most of the fields satellite accounts may cover. It is not so, however, for environmental protection. As already said, in this field, only a few goods and services may be considered specific; the same for characteristics activities. In the case of the environment, the relation between products, activities and purposes is much looser than in other fields we were previously referring to. Environmental protection expenditure has generally to be defined in terms of objectives pursued through actions or programmes (extending to other units the concept of programme, which is primarily used by government). Such programmes are related for instance to waste disposal, water protection and protection against water, noise abatement, preservation of air quality, protection of other natural media, public administration in environmental affairs, etc. Within the scope of the actions or programmes, which are included in the functional classification of environmental protection expenditure, current and capital outlays are covered. Items 1 and 2 in this context will not refer to specific goods and services but to goods and services, in general; of course, it is worth showing separately specific goods and services when they exist. The distinction between item 2 and item 3 may be questioned. However, item 3 would cover normally capital goods like bulldozers, sewage plants, which are subsequently used in providing current or capital goods and services protecting or maintaining the environment while item 2 consists in formation of environmental assets as such, like dams or reforestation. So the distinction between item 2 and item 3 is probably made directly in terms of various types of capital goods.

76. Item 4 - Specific current transfers (not counterpart of item 1) and item 5 (Specific capital transfers (not counterpart of item 2 or 3) are the most important components of national expenditure in some cases, like social protection or aid to development. In the above mentioned examples, items 1 and 2 refer only to the administrative costs, both current and capital, of the agencies managing social protection or international aid. The core of the expenditure consists of transfers prevalently to resident units for social protection, exclusively to the Rest of the world in the case of aid to development.

77. In other fields, like education and health, the major part of transfers (most of them in kind), are means of financing the acquisition by users of goods and services included in items 1 to 3. These transfers may not be counted twice in the expenditure. However, some transfers or part of transfers are not used to counterbalance acquisition of products included in items 1 to 3. For example, students grants may serve to finance various outlays in addition to tuition fees or school books. This additional component of students grants is included under item 4.

78. In each field a classification of specific transfers has to be established. As it is used for analysing uses and financing as well, this classification covers all specific transfers, independently of the fact that they are or not counterparts of item 1 to 3.

(To insert, if feasible, a classification of specific transfers in social protection.)

79. The total uses of resident units are the sum of the five above-mentioned components. Now that part of the uses of resident units which is financed by the Rest of the world by means of transfers or lending, is deducted in order to get national expenditure. National expenditure is thus equal to total uses of

resident units financed by resident units. It is convenient to distinguish between current and capital uses financed by the Rest of the world, in order to facilitate later on the calculation of current and capital national expenditure.

80. National expenditure, as above defined, does not include transactions in financial instruments, because the latter are not definitive uses or resources. They are not transfers, but economic claims which are provisionally put by some units at the disposal of other ones. Of course financial transactions may be a means of financing national expenditure, but this is another story. However, for certain types of analysis, like aid for development, measuring the contribution of a country necessitates accounting for loans which are allowed or received at preferential conditions. In any case benefits resulting, for instance, from rates of interest lower than the market ones are clearly implicit transfers (see table 14.2).

81. Uses/national expenditure may be shown by type of products and transfers or by type of purpose (programmes). The main emphasis may be put on one or the other of these two alternatives, which of course might be used jointly, depending on the field covered or the aim of the analysis pursued. The approach by programme is particularly relevant in the case of environmental protection or social protection.

(To insert a classification of programmes related to the environment, if feasible.)

82. Total uses of resident units or national expenditure may in most cases be calculated gross and/or net. In respect to research and development, item 2 has to remain gross, because the services rendered by R & D assets are not recorded in the account for R & D.

83. Current uses of resident units include components 1 and 4, capital uses components 2, 3 and 5. Current national expenditure is equal to the sum of components 1 and 4, less item 6. Capital national expenditure is equal to the sum of components 2, 3 and 5, less item 7.

84. As already explained, not all items are relevant in every case. Table 14.3 shows indicatively the usual coverage of national expenditure in various fields.

85. Some words of explanation are needed. Collective consumption for social protection and aid to development refers to current cost of managing agencies in these fields. Specific current transfers for tourism, transportation and housing eventually education, health and culture cover subsidies on the relevant products unless they are included under item 1. In many fields, they refer also to transfers to international organizations. As regards financing by the Rest of the world, it depends of course on specific circumstances; no crosses have been entered.

TABLE 14.2. National Expenditure by components and type of products/transfers or purpose

		Type of products and transfers or type of purpose (programs)					
COMPONENTS OF USES/NATIONAL EXPENDITURE	TOTAL	PROGRAM 1 OR PRODUCT 1					PROGRAM n OR PRODUCT n
1. Consumption of specific goods and services							
1.1 Actual final consumption							
1.1.1. Market products							
1.1.2. Non market products							
1.1.2.1. Individual							
1.1.2.2. Collective							
1.2. Intermediate consumption							
1.2.1. Actual intermediate consumption							
1.2.2. Internal intermediate consumption							
2. Capital formation in specific goods and services							
3. Fixed capital formation of characteristic activities in non specific products *)							
4. Specific current transfers (not counterpart of item 1)							
5. Specific capital transfers (not counterpart of item 2 or 3)							
Total uses of resident units							
6. Current uses of resident units financed by the rest of the world (less)							
7. Capital uses of resident units financed by the rest of the world (less)							
National expenditure							

*) and their net purchases of land and other non-produced assets

TABLE 14.3. Coverage of National Expenditure in various fields

COMPONENTS OF USES/NATIONAL EXPENDITURE	Culture	Education	Health	Social protection	Tourism	Environmental protection	Research and development	Aid to development	Transportation	Informatics	Housing
1. Consumption of specific goods and services											
1.1 Actual final consumption											
1.1.1. Market products	x	x	x		x	x			x	x	x
1.1.2. Non-market products											
1.1.2.1. Individual	x	x	x			x			x		x
1.1.2.2. Collective	x	x	x	x	x	x		x	x	x	
1.2. Intermediate consumption											
1.2.1. Actual intermediate consumption					x	x			x	x	
1.2.2. Internal intermediate consumption	x	x	x			x			x	x	
2. Capital formation in specific goods and services						x	x			x	x
3. Fixed capital formation of characteristic activities in non-specific products *)	x	x	x	x	x	x	x		x	x	x
4. Specific current transfers (not counterpart of item 1)	x	x	x	x	x	x	x	x	x		x
5. Specific capital transfers (not counterpart of item 2 or 3)				x				x			
Total uses of resident units											
6. Current uses of resident units financed by the rest of the world (less)											
7. Capital uses of resident units financed by the rest of the world (less)											
National expenditure											

*) and their net purchases of land and other non-produced assets

Users/beneficiaries

86. After having defined the contents of uses/national expenditure, attention is drawn to users or beneficiaries. The terminology used may differ from a given satellite account to another one. The word users is more relevant to tourism or housing for example, the word beneficiaries to social protection or aid to development, etc. In both cases, they refer to who is using the goods and services or benefiting from the transfers involved.

87. At the most aggregated level, the classification of users/beneficiaries is simply an adaptation of the central framework classification of institutional sectors and types of producers, in which the production function and the consumption function are separated out. It may be like the following:

Classification of users/beneficiaries

1. Market producers

2. Non-market producers

3. Government as collective consumer

4. Households as consumers

5. Rest of the world

88. Market producers cover all institutional sectors in their capacity as producers for the market. By convention generally internal activities of market producers are considered market activities, because their cost is a component of market prices. Non-market producers thus refer only to general government and non-profit institutions serving households in their capacity as producers of non-market products. This classification does not represent a departure from the central framework classifications. It is only a re-arrangement of the latter and of course, various sub-categories of producers may be distinguished under each main group, either by industry or/and by institutional subsector in order to show explicitly the detailed links with the central framework as well as for analytical purposes. Turning to actual consumption, general government is supposed to be, on behalf of society as a whole the final consumer of collective services produced by itself.

89. Then households as consumers are the most important type of users/beneficiaries in many satellite accounts. In fact, in many cases, the individuals themselves are the relevant units in the users/beneficiaries approach. In order to be useful for social analysis and policy, a further breakdown of households is necessary. It may be done of course in first instance according to the various subsectors that are distinguished in the central framework or using a more detailed or specially adapted socio-economic classification. Moreover, various criteria related to households or to individuals may be used according to different purposes, like size of income, age, sex, location, etc. For analysis and policy purposes, knowledge of the number of people concerned in each category is essential in order to know for instance the amount of average consumption or transfer, the number of people who do not benefit at all or very little from national expenditure in the field in question, etc.

90. Cross-classifying components of national expenditure and types of users/beneficiaries leads to table 14.4. Crosses indicate cells which may be filled in, if relevant in a given field.

91. Market producers may have actual intermediate consumption (transportation, informatics, environmental protection etc.), internal intermediate consumption (transportation, informatics, environmental protection, health, education) at least if the latter is not in some cases "finalized", capital formation in specific goods and services and fixed capital formation of characteristic activities in non-specific products, etc. They may also receive subsidies on specific products if the amount of such subsidies is not included in the value of item 1 or 2. Non-market producers may be concerned by the same items, except item 4.

92. Government as collective consumer deals only with collective consumption (item 1.1.2.2). Households as consumers are the users/beneficiaries of all actual final consumption of market products, of all individual consumption of non-market products and of that part of collective consumption which consists of collective services rendered by non-profit institutions serving households. They may also receive transfers under item 4 and 5.

93. The Rest of the World may be beneficiaries of transfers in the case of social protection and aid to development.

TABLE 14.4. National Expenditure by components and by users/beneficiaries

COMPONENTS OF USES/NATIONAL EXPENDITURE	TOTAL	Users/Beneficiaries				
		1 Market producers	2 Non-market producers	3 Government as collect. consumer	4 Households as consumers	5 Rest of the world
1. Consumption of specific goods and services						
1.1 Actual final consumption						
1.1.1. Market products					x	
1.1.2. Non-market products						
1.1.2.1. Individual					x	
1.1.2.2. Collective				x	x	
1.2. Intermediate consumption						
1.2.1. Actual intermediate consumption		x	x			
1.2.2. Internal intermediate consumption		x	x			
2. Capital formation in specific goods and services		x	x			
3. Fixed capital formation of characteristic activities in non specific products *)		x	x			
4. Specific current transfers (not counterpart of item 1)		x			x	x
5. Specific capital transfers (not counterpart of item 2 or 3)					x	x
Total uses of resident units	---------	---------	---------	---------	---------	---------
6. Current uses of resident units financed by the rest of the world (less)						
7. Capital uses of resident units financed by the rest of the world (less)						
National expenditure	---------	---------	---------	---------	---------	---------

*) and their net purchases of land and other non-produced assets

Financing

94. Users do not in all cases bear themselves the expenses. It is necessary to analyse now the financing units, that is the units which ultimately bear the expenses. We may use also for this purpose a classification which is derived from the central framework classification of institutional sectors, like the following:

1. Market producers

2. Non-profit institutions serving households

3. General government

4. Households as consumers

5. Financial enterprises

6. Rest of the World

95. It can be seen from this list that non-market producers are never considered ultimate financing units. Their costs, net of any secondary sales if any, are covered by their parent institutional units. Market producers refer to all institutional sectors in their capacity as producers for the market, like in the classification of users/beneficiaries.

96. A separate category is introduced for financial enterprises covering financial corporations and, if any, financial unincorporated enterprises. It refers only to their function of providing other units with funds they gather through financial intermediation or the investment of technical reserves.

97. Table 14.5 cross-classifies components of national expenditure and financing units.

98. The analysis of the way national expenditure in a given field is financed is more complex than the users/beneficiaries analysis. What unit is to be considered the ultimate bearer of the expenses is not always obvious.

99. Of course, it could be thought that, as the principle of the ultimate bearer of the expense is used in the central framework when attributing consumption expenditure to institutional sectors, one has just to follow the same solution here. In fact the problem is more complicated. First, we have to analyse the financing of capital formation and transfers, not only consumption. Second, we have to take into account financing through capital transfers and borrowing. Third, some precisions are needed, even for expenses made out of disposable income. In the above table, the following treatments are used:

- households as consumers are considered to be the financing units for all expenses made out of their disposable income, except for transfers in kind received from the Rest of the world and non-government/NPI's sectors. Components in kind of compensation of employees and entrepreneurial income are thus financed by households themselves, not by employers. Social contributions, as part of compensation of employees, represent means of financing by households;

TABLE 14.5. National Expenditure by components and financing units

COMPONENTS OF USES/NATIONAL EXPENDITURE	TOTAL	1 Market producers	2 NPI	3 General Government	4 Households as consumers	5 Financial enterprises	6 Rest of the world
	Financing units						
1. Consumption of specific goods and services							
1.1 Actual final consumption							
1.1.1. Market products		x	x	x	x	x	x
1.1.2. Non-market products							
1.1.2.1. Individual			x	x			x
1.1.2.2. Collective			x	x	x		
1.2. Intermediate consumption							
1.2.1. Actual intermediate consumption		x	x	x			
1.2.2. Internal intermediate consumption		x	x	x			
2. Capital formation in specific goods and services		x	x	x		x	x
3. Fixed capital formation of characteristic activities in non specific products *)		x	x	x	x	x	x
4. Specific current transfers (not counterpart of item 1)			x	x	x		
5. Specific capital transfers (not counterpart of item 2 or 3)			x	x			
Total uses of resident units	---------	---------	---------	---------	---------	---------	---------
6. Current uses of resident units financed by the rest of the world (less)							-x
7. Capital uses of resident units financed by the rest of the world (less)							-x
National expenditure	---------	---------	---------	---------	---------	---------	---------

*) and their net purchases of land and other non-produced assets

- market producers finance their intermediate consumption through their sales;

- non-profit institutions serving households are treated ultimate financing units, not the households who pay contributions to them;

- especially general government is treated as ultimate financing unit, not the other units which pay taxes to it; however, as indicated above, social contributions represent means of financing by households;

- transfers in kind received from the Rest of the world eventually non-government/NPI sectors are treated as means of financing by the Rest of the world, eventually non-government/NPI sectors;

- incurrence of liabilities is treated as a source of financing the expenditure. When the counterpart of this incurrence of liabilities is a direct acquisition of assets by institutional units other than financial enterprises, the corresponding financing is recorded in the relevant columns 1 to 4 or 6. Acquisition of financial assets by financial enterprises through their intermediation function is considered financing by these enterprises, not the units that own for example the deposits.

100. Looking at this table, it can be seen that actual final consumption of market products which is always a use of households may be financed by general government and NPI's (transfers in kind), eventually the Rest of the world and market producers (transfers in kind) and financial enterprises,(loans), and finally households themselves. Individual and collective consumption of non-market products are financed by general government and NPI's exceptionally by households (see below).

101. The financing of capital formation is complex. Let us examine first the case of market producers, like the one of an investment consisting in the building up of a hotel by an unincorporated enterprise. If the government tries to encourage tourism activities, there may be a capital transfer receivable by the investor; in other cases, capital transfers from the Rest of the world might exist. A second part may be financed by a loan made by a bank for example. The residual represents self-financing by the owner of the unincorporated enterprise, through saving or sale of assets. These three components will appear in row 3 and columns 3, 5 and 4 respectively. Of course data availability may raise difficulties. Three approaches are possible: direct surveys like the ones which are carried out in some countries on housing, financial and administrative data (in the above example data coming from financial enterprises and the Ministry in charge of tourism) business accounts when they exist. Of course the problem is rather simple when market producers in a given field correspond exactly or are very close to a set of institutional units the economic activity of which is essentially a characteristic activity in this field. In this case, analysing the capital account of the producers provides the main required data which are used in conjunction with data from financial enterprises and government agencies. If big corporations involved in a lot of different activities are concerned, the problem is more difficult to solve. At the limit, in some cases loans and self-financing may have to be grouped

together, the total appearing as financed by market producers, either today or tomorrow, when repaying the loans. 3/

102. When capital formation by government units is involved, the analysis of the financing process may become even more complex, as a government may cover its overall deficit by issuing for example bonds which are not intended to finance specific programmes. However, especially in developing countries loans given by the Rest of the world are often specifically directed to identified investment programmes. No general recommendation can be made. The solution to be retained depends of the circumstances prevailing in a given field in a given country. It may be sensible for instance to apply in a specific field the general structure of the financing of government accumulation, if no other method seems operational.

103. In the table under consideration, households appear as financing units under item 4 specific current transfers. This covers social contributions which households pay to government out of compensation of employees. A detailed analysis of households as beneficiaries of social benefits and households as financing social protection through social contributions permits to analyse the redistributional effect of social protection schemes (such an analysis of course needs to take into account other ways of financing social protection). A part of social contributions covers current cost and eventually capital outlays of social protection institutions. It appears on rows 1.1.2.2 and 3. When tax benefits are estimated and included in social protection accounts in item 4, households are at the same time beneficiaries and financing units, as a redistribution process between various types of households is involved.

104. In the table, financing units are the ultimate bearers of the expenses. For example, current transfers by central government to Social Security funds are central government outlays. In more detailed analysis transfers between initial, intermediary if any and ultimate financing units have to be shown in order to build up a complete set of accounts for the relevant managing agencies (social protection schemes in the case of social protection accounts).

105. The table under consideration shows first how uses of resident units are financed. In some cases the Rest of the world may be a source of finance (by means of transfers or net lending). This appears in the relevant rows and the column for the Rest of the world. Then, in order to get the financing of national expenditure, the corresponding amounts are deducted on rows 6 and 7.

106. National expenditure is tnus equal to the total outlays of resident financial units in the field in question. This is identical to total uses of resident units financed by resident units.

3/ Repayments of previous loans raise a general problem. It seems relevant in most cases, to consider only net loans (that is, new loans less repayments of loans) linked to the financing of a given field as financing provided by financial enterprises. Consequently, self-financing covers present self-finance plus repayments of previous loans.

Production and products

107. The supply of specific goods and services has various sources: imports and domestic output. A part of domestic output may not be included in uses of resident units but in exports. As explained above when defining the components of national expenditure, two types of goods and services are generally distinguished in a satellite account; characteristic goods and services and connected goods and services. The first are typical for the field in question. The activities in which they originate are called characteristic activities. Producers which carry out a characteristic activity are said characteristic producers. In a satellite account the main emphasis when looking at production is put on the analysis of characteristic activities and producers. The producers of connected goods and services are not analysed in depth because they are not typical of the field activities and belong to other activities outside the domain of a given satellite account.

108. The way production units may be analysed in a satellite account has been dealt with in section 1 (see para. 5 et seq.) and is not repeated here. In a given field, a list of characteristic activities has to be established. This list may include some activities which are considered also characteristic in other fields. Characteristic producers may be defined in various ways. Strictly speaking, they are homogeneous production units belonging either to establishments whose main activity is a characteristic activity or to establishments which carry out a characteristic activity only as a secondary activity or to ancillary activities. They may also refer to an extension of the production boundary. For sake of convenience, establishments whose main activity is a characteristic activity may be covered totally, including their non-characteristic secondary activities. Market and non-market producers are distinguished. Production activity of characteristic producers is studied in detail. This covers the production and generation of income accounts, the analysis of output by kind of products and number of units produced, the destination of this output (consumption, capital formation, exports) and the factors of production used. The latter refer to labour and fixed assets. As to labour, in addition to compensation of employees which may be subdivided according to various criteria, like skill and sex, the number of people employed is shown in detail, again according to various criteria. Figures for fixed capital formation of course are covered. Stocks of fixed assets in monetary value and/or physical quantities (number of hospital beds, of primary schools, etc.) are essential.

109. When relevant, the analysis of supply and use of specific goods and services may be inserted in a input-output framework. In that case, classifications of characteristic activities, characteristic products and connected goods and services are detailed, while classifications of other activities and products are compacted.

110. Tentatively, table 14.6, which is a re-arrangement of the supply and use table of the central framework (see chap. II) shows how such a satellite analysis may be inserted in an input-output table. Homogeneous units of production are considered in principle. Characteristic industries and other industries are separated out. Among characteristic industries market producers cover separately homogeneous units of production belonging to principal producers (establishments the principal activity of which is a characteristic activity), secondary producers (establishments the principal activity of which is not a characteristic activity) and ancillary activities (the output and input of which are externalized). The same distinction is made for non-market producers; in addition, a column "Others"

TABLE 14.6. SATELLITE INPUT-OUTPUT TABLE (Supply and Use table)

RESOURCES	TOTAL SUPPLY IN PURCHASERS' PRICES	Trade & transport margins	Taxes on products (3)	Subsidies (-) (3)	CHARACTERISTIC INDUSTRIES								OTHER INDUSTRIES	NATIONAL ECONOMY	IMPORTS OF GOODS AND SERV.
					TOTAL	MARKET PRODUCERS			NON-MARKET PRODUCERS						
						Principal producers	Secondary producers	Ancillary activities	Principal producers	Secondary producers	Ancillary activities	Others			
GOODS AND SERVICES supply:								Output (1)							
Characteristic products															
1.															
2.															
...															
n.															
Connected products															
1.															
2.															
...															
n.															
Other products															
TOTAL															

Table 14.6 (continued)

USES	TOTAL USES IN PURCHASERS' PRICES				CHARACTERISTIC INDUSTRIES								OTHER INDUSTRIES	NATIONAL ECONOMY	EXPORTS OF GOODS AND SERV.
					TOTAL	MARKET PRODUCERS			NON-MARKET PRODUCERS						
						Principal producers	Secondary producers	Ancillary activities	Principal producers Government	Secondary producers	Ancillary activities	Others			
GOODS AND SERVICES uses:								Intermediate consumption							
Characteristic products															
1.															
2.															
...															
n.															
Connected products															
1.															
2.															
...															
n.															
Other products															
TOTAL															
TOTAL GROSS VALUE ADDED/GDP															
Compensation of employees															
Taxes on products Other taxes linked to production			(3)			(2)	(2)	(2)	(2)	(2)	(2)	(2)			
Subsidies on products (-) Other subsidies linked to production (-)				(3)		(2)	(2)	(2)	(2)	(2)	(2)	(2)			
Operating surplus, net Mixed income, net															
Consumption of fix. capital specific products non-specific products															
Operating surplus, gross Mixed income, gross															
TOTAL															
GROSS FIXED CAPITAL FORM. specific products non-specific products															
LABOUR INPUTS															

Table 14.6 (continued)

Final consumption expenditure					Gross capital formation	
HOUSEHOLDS			GOVERNMENT			
HOUSE-HOLDS excl.NPI	NPI				Gross fixed capital format.	Changes in stocks
	collec-tive	indivi-dual	collec-tive	indivi-dual		

(1) Output can be valued at
(a) basic prices
(b) producers' prices in the absence of VAT
(c) producers' prices in the presence of VAT

(2) The item "taxes on products" will apply to industries only in cases (b) and (c), including in case
(b) taxes on products, except taxes on imports
(c) taxes on products, except taxes on imports and VAT
The item "subsidies on products" will apply to industries only in cases (b) and (c), including in both cases subsidies on products, except subsidies on imports

(3) According to the different valuation of output, the item "taxes on products" will include:
in case (a) all taxes on products
(b) taxes on imports
(c) taxes on imports and VAT
According to the different valuation of output, the item "subsidies on products" will include:
in case (a) all subsidies on products
(b) and (c) subsidies on imports

under non-market producers refers to an eventual extension of the production boundary. Other industries, from which ancillary activities characteristic of the field under study have been excluded, are grouped altogether, unless it is thought useful in some cases to show separately some industries which are main providers of intermediate inputs or capital goods to characteristic industries or industries which are suppliers of certain connected goods and services. Examples of this kind are the pharmaceutical industry for health, or the residential buildings construction industry for housing.

111. As indicated in paragraph 110, it may be chosen for sake of convenience to include in their totality the establishments the principal activity of which is a characteristic activity. In this case, the column for principal producers would include establishments, instead of homogeneous units of production, and their non-characteristic secondary activities. The column for Secondary producers, and of course ancillary activities, should continue to refer to homogeneous units of production in order to limit the degree of heterogeneity of the group of characteristic producers. When secondary and/or ancillary output of characteristic products is not significant in size, it could be treated as secondary output of other industries.

112. The supply of characteristic and connected products appears in the rows. The sources are import and domestic output. If some secondary producers are not included in the relevant column for characteristic industries, their output is shown in the column for other industries, where appears also the output of connected goods and services. Other products are grouped altogether, unless again it is thought convenient to show some details. When relevant it is necessary to distinguish, in characteristic and connected products, market and non-market goods and services. This separation has not be made here in order to keep the table simple.

113. In the lower part of the table, the use part of the production account and the generation of income account of industries is shown. At the bottom, two rows are added for gross fixed capital formation and labour inputs.

114. Then final uses are depicted in the relevant columns without any modification of presentation. Of course it is possible to rearrange the columns in order to show actual final consumption first if preferred. This last presentation is more in line with the way uses of goods and services are described in a satellite account.

115. It is easy to see the links between this input-output table and the table showing the components of national expenditure. Consumption of specific goods and services is shown separately for characteristic and connected products in the columns for intermediate and final consumption. Capital formation in specific goods and services appears at the intersection of the relevant products and the columns for capital formation. Gross fixed capital formation is shown at the bottom with the distinction between specific and non-specific products (rows gross fixed capital formation and columns for characteristic industries). It is thus possible to get the gross fixed capital formation of characteristic industries and the gross fixed capital formation in specific products by other industries. The consumption of fixed capital is also subdivided between consumption of fixed capital in specific products and consumption of fixed capital in non-specific products. Thus, the total consumption of fixed capital by characteristic

industries and the consumption of fixed capital in specific products by other industries are shown, providing the necessary information for calculating the national expenditure.

116. Subsidies on characteristic and connected products and other subsidies linked to production receivable by characteristic industries may constitute all or part of specific current transfers.

117. In addition to showing these components of national expenditure, the table gives an overall picture of domestic characteristic activity in a given field. The sum of output of characteristic products by the various characteristic industries measures the total output of a given domestic characteristic activity (domestic characteristic output) whoever the users are, resident or non-resident. For tourism, all the corresponding uses are made in the domestic territory, either by resident or by non-resident crossing the border. In this case, it is possible to speak of tourist consumption in the domestic territory. The latter is equivalent to tourism domestic output and is sometimes referred to as tourist domestic consumption or even tourist domestic expenditure. Does this mean that in general it would be possible to derive from national expenditure a concept of domestic expenditure by subtracting imports/adding exports and subtracting specific transfers to the Rest of the world/adding specific transfers from the Rest of the world? In practice, a concept of domestic expenditure has been introduced in some satellite accounts like the R & D accounts based on the Frascati Manual. When in a given field, there is no import/export of characteristic services (this may occur very often for education and health), domestic characteristic output and uses of characteristic goods and services in national expenditure coincide, both taking place in the domestic territory. This fact explains probably why in cases where imports/exports and transfers to and from the Rest of the world were unimportant, use has been made of this expression domestic expenditure, like for research and development or education. While this terminology may be not too much misleading in some cases, it does not seem conceptually relevant because, as soon as imports or exports are significant, it is difficult to use a concept of domestic expenditure which excludes the uses of imported characteristic products and includes the uses of exports which are made abroad (the only acceptable exception is tourism because in that case the consumers themselves cross the border, not the products). Even for research and development, external trade in services has grown in importance. In fields where transfers are important or predominant, like for social protection, similar difficulties are encountered when trying to speak of domestic expenditure as embracing transfers received by residents from resident units or the Rest of the world, at least if transfers received from or payable to the Rest of the world are significant. For these reasons, a concept of domestic expenditure is not introduced in the tentative satellite accounts framework presented in this chapter. Using the concept of domestic characteristic output previously defined seems preferable in order to get an aggregated measure of domestic characteristic activity. This activity is analysed in depth as seen in the above table.

Full accounts for characteristic producers

118. When analysing a given field in a satellite account, it is worth generally to establish complete accounts for characteristic producers. The accounts of these two kinds of units are looked at successively.

Characteristic producers accounts

119. Complete accounts may be established only for institutional units. Until now, when dealing with production and products homogeneous units of production or establishment-type units were considered, their accounts ending with operating surplus and, if relevant, mixed income, gross fixed capital formation being shown additionally. In a given field many homogeneous units of production or establishments belong to institutional units the principal productive activity of which is a characteristic activity in this field. In order to extend the analysis, it is useful to regroup all these institutional units in a sector of characteristic producers. Their accounts may be shown using a simplified presentation. For example, current accounts might be subdivided only between production and generation of income account from one side and other current accounts from the other one. Then the accumulation accounts are grouped altogether. Balance-sheets are included or not. Where relevant, transactions and balancing items are to be broken down between characteristic activities and other activities, in order to show the links between these accounts and the satellite input-output table.

120. As satellite accounts are functionally oriented, the sector of characteristic producers may in addition cover the transactions of other producing units which are also characteristic producers in the field in question but belong to institutional units of which the principal activity is not in this field. In order to balance the accounts, the operating surplus or mixed income of these producing units is transferred as property income to their parent institutional units. There is by hypothesis no net operating surplus for ancillary activities and non-market producers. In the accumulation accounts, the capital formation of these producing units is balanced by an equivalent capital transfer coming from their parent institutional units.

Accounts for the sector of characteristic producers

Production and generation of income account

Intermediate consumption	Output
- of characteristic	- characteristic output
	- activities
- of other activities	- other output
Compensation of employees	
- of characteristic activities	
- of other activities	
Taxes on products, net	

Consumption of fixed capital

Operating surplus

- of characteristic activities
- of other activities

Mixed income

- of characteristic acitivities
- of other activities

Other current accounts

Property income	Operating surplus
	Mixed income
Current taxes on income wealth, etc.	Property income
Other current transfers	Other current transfers
Collective consumption	
Saving	

Accumulation accounts

	Saving, net
	Consumption of fixed capital
Gross fixed capital formation	Capital transfers receivable
- of characteristic activities	Capital transfers payable (-)
- of other activities	
Changes in stocks	
Net purchases of land and other non-produced assets	Net incurrence of liabilities
Net acquisition of financial sets assets	- for financing characteristic activities
Other accumulation transactions	- others
	- other changes in net worth

121. In fields where distributing transfers is the main economic function involved, the production of services playing only a marginal role, the analysis of units managing the distribution and redistribution processes is prevalent. This is the case essentially for social protection. It is then simpler to group together all current accounts, the production part of them being simplified by showing directly administrative costs as uses and secondary sales, if any, as resources.

122. Of course, if social protection institutions are acting themselves as producers of health or welfare services and if a satellite account is shaped in order to cover at the same time production and redistribution functions, the above presentation of accounts remains relevant. In both cases, the analysis of transfers and their financing is given great importance.

123. Transfers benefits are analysed according to their nature (in cash, in kind, subdivided in various ways) and the type of risks (sickness, unemployment, etc.) they relate to. A detailed classification of social protection schemes is also used (basic, complementary or supplementary schemes, subdivided between national, general, special or voluntary schemes for instance).

Non-monetary data

124. A satellite account allows for the linkage of physical data to the monetary accounting system. In the central framework this kind of links remains generally implicit, as it would not be feasible to associate with the macro-economic accounting framework an explicit full set of physical data. It is done only in the case of population and employment where showing these figures is necessary for calculating a number of per head indicators like income, consumption and productivity. In a satellite account, where a specific field is covered, there is need and at the same time the feasibility to associate many more physical data to the monetary ones. Those physical data have been mentioned when going through the various pieces of a functionally oriented satellite account framework. It is worth recalling them here. Starting from production, output and factors of production have been referred to in paragraph 105. As output is studied in much more detail than in the central framework, even when the latter includes a detailed supply and use input-output table, it is generally possible to show meaningful data on the number of units produced or used: physician consultations according to various kinds of physicians, hotel-nights of various types, student years in various levels of education, etc. The labour force may be presented in detail: number of people employed in various categories, according to skill and sex, number of hours worked or equivalent person years, number of people in training, etc. Data on existing assets in physical terms are especially interesting in such fields as education, culture, health or housing. In conjuction with labour force data, they constitute well known social indicators, as number of teachers or schools of a certain type, number of hospital beds, or of physicians, etc. per ten thousands inhabitants for instance, or number of square meters of dwelling per head, etc. Another important dimension of non-monetary data refers to users/beneficiaries of the goods and services and recipient of the transfers in question. Those data are especially meaningful again in the fields of social concern like education, health and social protection. They necessitate information that are generally less developed than the ones on labour force and assets mentioned above. However they are indispensable to assess the level of living of various parts of the population and look in depth to certain aspects of redistribution policy.

125. Physical data are not to be considered a secondary part of a satellite account. They are essential components of the latter as such, for the information they directly provide, and in order to make the monetary data fully meaningful. They are not even "a" part of the framework, but have to be inserted in the relevant parts of the latter. Of course they have to be carefully selected in order to avoid overburdening the picture.

Links with the central framework

126. The tentative framework presented in this section departs little from the central framework standards. Of course this neighbourhood might be more apparent than effective if the amounts related to the various items were different from the ones attached to the same flows in the central framework, for example in case a satellite account is established independently from the central accounts themselves. Normally the assumption is that at a certain point in time the same items are represented by the same figures in the central framework and in a satellite account. For instance, the amount of social contributions and social benefits have to be identical in the central accounts and the social protection account (1).

127. Many elements shown in a satellite account are not visible in the central accounts though being included. Either they are explicitly estimated in the making of the central accounts, but they are merged in more aggregates figures depending on the way the central accounts are presented and published, or they are only implicit components of transactions which are estimated globally. For each of the fields which have been mentioned in paragraph 53, only a small number of figures appear in the central accounts, even when the latter are very detailed. Consequently the first role of a satellite account is to make explicit the implicit figure of the central framework, which may necessitate a certain amount of additional work when those figures are not actually estimated as such.

128. Most of those implicit figures or the ones which appear explicitly in the central framework are qualified in the same way when carried to a satellite account. For instance an element of actual final consumption or capital formation or a transfer remains identical from all points of views in most cases.

129. However, even in a satellite accounting framework very close to the central framework as the one presented above, some degress of freedom are introduced. They have been noted by the way. In a number of cases, classifications of economic activities, products and purposes have to be adapted to the field in question. This is mostly a problem of presentation. As the coverage of a given field sometimes extends beyond the corresponding aggregated positions which appear in the central classifications (e.g education and health, health and R & D) or is widely transversal (e.g tourism or environmental protection), a certain re-arrangement of the positions of the central classifications have to be made when elaborating classifications for a given field. This point is a delicate one. If done without the necessary precautions, this work may lead to inconsistencies between the general and the specific classifications. As a rule all the links with the central classifications must remain visible. As explained in the text, the proposed classifications of users/beneficiaries and financing units do not represent departures from the central system classifications. They rely upon the distinction between various aspects of the activity of institutional sectors, without modifying the definition of these.

130. Other margins of freedom are used in this framework. For instance, the output and input of the relevant ancillary activities are externalized, which is a difference with the central framework. This element is always apparent in the list of components of uses (see item 1.2.2 internal intermediate consumption) and in the satellite supply and use table. The concept of national expenditure is broader - it may include transfers - and narrower - financing by the rest of the world is excluded - than in the central framework. Also a simplified presentation is used for the accounts of the sector of characteristic producers. This is a minor point and other choices may be made.

131. The framework introduces in addition a number of elements which are not such as in the central framework, but do not conflict with it at all. Above all, this refers to the introduction of the concepts of characteristic foods and services, the total of which constitute the specific foods and services. Correlatively, the concept of characteristic producers/industries is introduced. Also gross fixed capital formation and consumption of fixed capital make the distinction between specific and non-specific products. Finally, physical data are introduced (see "non-monetary data").

132. Then a satellite account may use elements which have no equivalent at all in the central framework. They have not been shown when presenting the satellite accounting framework, because they vary from one field to another, according to their specificities. Examples of such elements are classifications of diseases (for use when studying in detail consumption of health services and connected products), of scientific disciplines (for R & D expenditures), of levels of education, of risks covered by social protection, list of programmes for environmental protection or research and development, etc.

133. The kind of satellite accounts studied in this section may also have recourse to alternative concepts, as it was touched upon by the way. The boundary of production could be displaced in order to include housework and voluntary work (see the column for other non-market producers in the supply and use table), which would affect for example education, health and social protection. A production function for own account transportation by households might be introduced in the relevant account. The accounts for education and health could be established in the context of a concept of human capital. The account for environmental protection may be established with a broader view to environmental accounting in general, extending the concept of maintaining capital intact to national resources or at least part of them. The satellite accounting framework presented in this section as a general orientation does not prevent people from extending some satellite accounts in the directions mentioned in this paragraph. On the contrary these additional dimensions represent valuable enrichments of the analytical power of the national accounting approach.

Satellite accounts and specific statistical systems

134. Satellite accounts from one side are linked with the central framework of national accounts and through them to the main body of economic integrated statistics. On the other hand, as they are more specific to a given field or topic, they are also linked to the information system specific to this field or topic. Being more flexible than the central accounting framework, a satellite account may play a central role in the integration of monetary data relevant to the field it covers. It also calls for better integration of monetary and physical

data. At the same time, it does not lose close connections with the central accounts, thus permitting insert analyses of specific fields in the context of macro-economic accounts and analyses. Satellite accounts in various fields may in addition help connecting analyses between some of those fields. Satellite accounts are able to play a double role in general, as tools for analyses and for statistical co-ordination. Of course a satellite account does not cover all the information system in a given field. For example health accounts do not include statistics of diseases as such. A conceptional framework is necessary in each specific field of statistics. A satellite account belongs at the same time to this specific conceptual statistical framework and to national accounts taken in a broad sense.

Concluding remarks

135. The framework presented in this section may cover an important number of fields, as already visible from the list given in paragraph 53 which is not limited. Most of the fields quoted refer to services, they generally spread over a number of industries, they correspond in many cases to a purpose, from the point of view of functional analyses, which is very often a subject of social concern. This framework may not fit all topics which one might like to study in connection with central national accounting (see for instance section 3 on environmental accounting). However the general approach followed in this type of satellite accounts may give valuable inputs for other types of accounts. The above paragraph on the links with the central framework are relevant in general to a flexible but closely connected accounting methodology around central national accounts. Specific parts of the functionally oriented satellite framework may also be relevant in other cases, even in the context of the central framework itself, like the satellite supply and use table which is used, with terminological adjustments, for key activities and products.

136. The last remark is a warning. As the fields of various satellite accounts sometimes overlap, the shares of national expenditure in those fields in relation with GDP for example may not be strictly speaking additive. In effect, satellite accounts do not try to partition the whole set of activities/purposes according to the classical approach, without overlapping or voids. Some activities/products/purposes may be classified in various places. Thus the denominator is normally to be modified if shares of overlapping fields have to be calculated.

Annex 2: GFS-SNA RELATIONSHIPS*

A. Introduction

1. Because the SNA is concerned primarily with measures applicable to the economy as a whole, it does not address some of the concerns of particular sectors. Similarly, statistical systems organized to meet the needs of particular sectors do not address some of the concerns of analysts dealing with the economy as a whole. The differences between sectoral statistical systems and the SNA reflect these different concerns.

2. This is clearly the case with the statistics on government finance. Policy makers, analysts and others engaged in the continuing public debate on government finances are not primarily concerned with government production, government consumption, or changes in the government's asset position. Their primary concern is with the financial impact - on the economy as a whole and on its particular parts - of the government's receipts and payments during each period. Within the overall context of government payments and receipts, they focus on finding the most effective means of pursuing policy objectives, whether by government hiring, purchasing, subsidizing, lending, taxing or borrowing. The SNA, on the other hand, must focus on the government sector's production, income, consumption, capital accumulation, and finance in order to reach the requisite totals for the economy as a whole and to compare and relate the government's activities with those of other sectors.

3. The government finance statistics (GFS) system was drawn together by the International Monetary Fund from the main elements of country practice and debate so as to meet the needs of those concerned with public finance for the purpose of policy analysis and policy formulation. As a result, GFS differs in focus from the SNA. The two systems operate in different analytical frameworks, with different structures of accounts, compiling data on different bases, with different consolidation rules, and some differences in the classification of transactions. Yet, despite these differences, the two systems' concepts, methodologies, and data can contribute significantly to strengthening each other in a number of ways: (a) eliminating the duplication of efforts that can occur in drawing data from the same basic sources, (b) providing useful cross-checks of data assembled for related SNA and GFS concepts, (c) highlighting possible alternative approaches to the combination of each system's components so as to address the particular concerns of public finance or of the economy as a whole, and (d) clarifying the often confusing relationships between the results of measurements in the two systems.

4. This annex examines the effects of the two systems' differing objectives on their accounting rules, structures of accounts, analytical frameworks, and classifications of transactions, provides bridge tables identifying the relationship between GFS and SNA components, and suggests possible alternative combinations of SNA components for government.

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* Draft not reviewed by the Expert Group on SNA Co-ordination.

B. Accounting rules

5. To reveal as clearly as possible the financial interaction involved in all government operations with the economy, GFS accounting rules, or compilation procedures, call for presentation of the maximum information on actual money flows derivable from the government's accounts. Thus, GFS seeks to measure - by using government accounting records and avoiding imputations - the gross money flows to and from government taking place in each time period.

6. So as to reveal as much information as possible about government, GFS reports gross flows for all government transactions other than financing transactions or those of the small-scale enterprise activities which remain within government and for which sales proceeds are netted against their corresponding operating costs. GFS avoids netting or offsetting some transactions against others as negative payments or negative receipts, since this can obscure significant portions of government activity. To gauge the magnitude of the government's financial interaction with the economy, GFS reports only external flows - that is, those with the rest of the economy - rather than internal flows between one part of government and another, which appear only as memorandum items.

7. Reflecting the nature of certain important government operations and accounts, GFS calls for data to be compiled on a cash basis whenever possible. Unlike enterprises, which keep track of their accrued liabilities to others (accounts payable) and of others' accrued liabilities to them (accounts receivable) in order to calculate their net worth, costs, and income, governments do not find it possible to maintain full accrual accounts. This is because many liabilities accruing to government from others or accruing from government to others are generated not by deliveries, which government accounts can register, but by transactions in which government is not a direct participant and of which the government may have no immediate knowledge. Tax liabilities accruing to government at the time of a sale are not reported to government until some time later, for example, while government liabilities for unemployment compensation accruing when unemployment occurs are not known to government until the claims are filed. As a result, governments generally keep accounts on a payments, rather than accrual, basis. GFS utilizes such payments flow data, particularly for aggregate revenues and expenditures, as the best ready approximation of the flows of funds and resources, which avoids problems of valuing resource flows, corresponds most closely with other financial statistics, and facilitates the extraction of data from most governments' accounts. Where payments data are not available for particular details below the aggregate levels, GFS calls for use of the most reliable data between the delivery and payment stages and identification of any differences between such data and the payments-based totals.

8. GFS adheres to the accounting records of payments and receipts and generally avoids the imputation of transactions. However, to identify financial institution type activities carried out by government, it reroutes through the financial institutions sector any transactions involving the acceptance of demand, time, or savings deposit liabilities or the performance of monetary authorities' functions by units in government.

9. SNA accounting rules, or compilation procedures, reflecting the SNA requirement that concepts be presented consistently at both the sectoral and national level, differ from GFS accounting rules in several respects.

(a) To permit the combination of data on government operations with data on operations of the other sectors, which, primarily to measure production-related transactions in the enterprise sector, are recorded on an accrual basis, SNA calls for the compilation of data on government on an accrual basis as well. Cash basis data found in the government accounts generally require adjustment to an accrual basis for use in SNA, therefore. This is accomplished mainly by adjusting for the lags between the liability-generating occurrences and payments.

(b) To permit calculation of separate totals for production, income, consumption, capital accumulation, and finance, rather than only for total government payments or receipts, SNA calls for the elimination of transactions within government in the consolidation process only if both sides of the transaction fall within the same account. Taxes on production and imports paid by government, for example, would appear as uses in the government's production account and as resources in the government's distribution of income account, and would not be eliminated from either. This ensures the measurement of the government's uses of production and its sources of income consistently with the measurement of other sectors.

(c) To permit the calculation of some economic concepts which involve not only explicit transactions recorded as payments of receipts but also transactions in kind and ongoing, sometimes unrecorded, process, SNA calls for the imputation or rerouting of some transactions, such as the imputation for consumption of fixed capital or the accumulation of unfunded pension rights, and the rerouting through households of employer social contributions.

(d) To ensure the presentation of a number of net concepts, such as fixed capital assets, consistently on either the use or resource side of the accounts, SNA groups with them their subsidiary components, such as sales of fixed capital assets, some of which are consequently netted or offset as negative payments or negative receipts.

C. Structure

10. Much of the analytical content of the SNA comes from its organization of components into separate accounts designed to generate key concepts as residual balancing items which are carried as opening balances into the succeeding account. As GFS does not attempt to calculate many of these concepts, it has no need for organization into such separate accounts. It organizes transactions instead into a single balanced account, with a single balancing item, and shows all receipts and payments only once. This is reflected also in the more far-reaching consolidation procedures of GFS, referred to above, which eliminate all transactions within government rather than only those with both sides of the transaction in the same SNA account.

11. Within the single GFS account, the distinct nature of government operations finds expression also in another feature. Unlike other sectors, in which assets and liabilities may be viewed symmetrically, government assets and liabilities differ quite significantly from each other, as discussed below. The GFS account, therefore, is characterized by asymmetrical treatment of government assets and liabilities, while SNA treatment is symmetrical, reflecting the pattern in other sectors and in the economy as a whole.

D. Institutional coverage

12. The SNA and GFS define the government sector identically both externally, as regards its borders with other sectors, and internally, as regards its subsectorization.

13. Both provide for the alternate possible classification of social security funds, as either a part of the level of government at which they operate or as a separate subsector of government.

14. In some cases, classification may be affected by differing rerouting conventions in the SNA and GFS. Thus, for example, the SNA routes through the household sector employer contributions to social security; GFS routes through the financial institutions sector any acceptance of demand, time, or savings deposit liabilities or performances of monetary authorities' functions by government units.

15. To arrive at totals for the operations of both resident and non-resident government within member countries of supranational authorities, e.g. the European Communities, GFS combines with general government the non-headquarters operations of the supranational authorities within each member country.

E. Analytical framework

16. Because the focus of public policy is not upon the government's own production, consumption, or asset position but on the government's effects upon the rest of the economy, the GFS analytical framework is organized somewhat differently from that of the SNA. The GFS focus is organized somewhat differently from that of the SNA. The GFS focus is on the overall balance of the government's operations, affecting its debts and liquidity holdings, and on the nature of government receipts and payments in terms of their impact on flows of goods and services, on incomes, prices, and financial markets.

17. As only money flows are registered by the cash basis data utilized by GFS, organization of the flows is based upon what flows in the opposite direction. This is represented graphically in Chart 1. All flows are divided vertically between payments and receipts, with an undivided cell at the bottom for the resulting changes in cash balances, so that the diagram as a whole represents a closed system, with payments always equal to receipts plus the change in cash balances.

18. Flows of receipts and payments are divided horizontally by what flows in the opposite direction: goods and services, nothing (when there is no quid pro quo), others' liabilities to government, and government liabilities to others.

19. Money flows in exchange for goods and services or nothing are divided vertically to distinguish current flows from capital flows.

20. Money flows in exchange for others' liabilities to government are divided vertically to distinguish those undertaken for the management of the government's liquidity from those undertaken for public policy purposes - that is, government lending or the acquisition of equities in pursuance of the same types of goals as government spending - a distinction applicable to government but not to other sectors of the economy.

Chart 1. Location of various transactions in GFS analytical framework

	RECEIPTS		PAYMENTS	
	Current	Capital	Capital	Current
Goods & Services	Fees & charges Nonindustrial sales Property income	Sales of capital	Acquisition of capital	Wages & salaries Purchases of goods & services Interest
Nothing	TAXES Fines, forfeits, licenses	Capital transfers from nongovernmental sources	Capital transfers	Current transfers
	Current grants	Capital grants		
Others' Liabilities	Liquidity Management	Public Policy Repayment of past government lending	Public Policy Gross government lending	Liquidity Management
Government Liabilities	Borrowing		Amortization	
	Change in cash balances			

21. To distinguish grants received from other governments or international organizations from receipts of taxes and other transfers from non-governmental sources, a further horizontal division is drawn among government receipts for which nothing flows in exchange.

22. This framework permits the classification of transactions by a number of criteria evident at the time each transaction is carried out: Are payments in to government or out? Do they involve a repayable claim or not? If not, is there a quid pro quo for the payment, that is something in return, and is the payment of a current or capital nature, that is, involving a capital asset above some minimum value to be used for production for more than a year? If the payment involves a repayable claim, is it a government financial asset or a government liability, and if a government financial asset is it acquired for public policy purposes or in order to manage the government's liquidity?

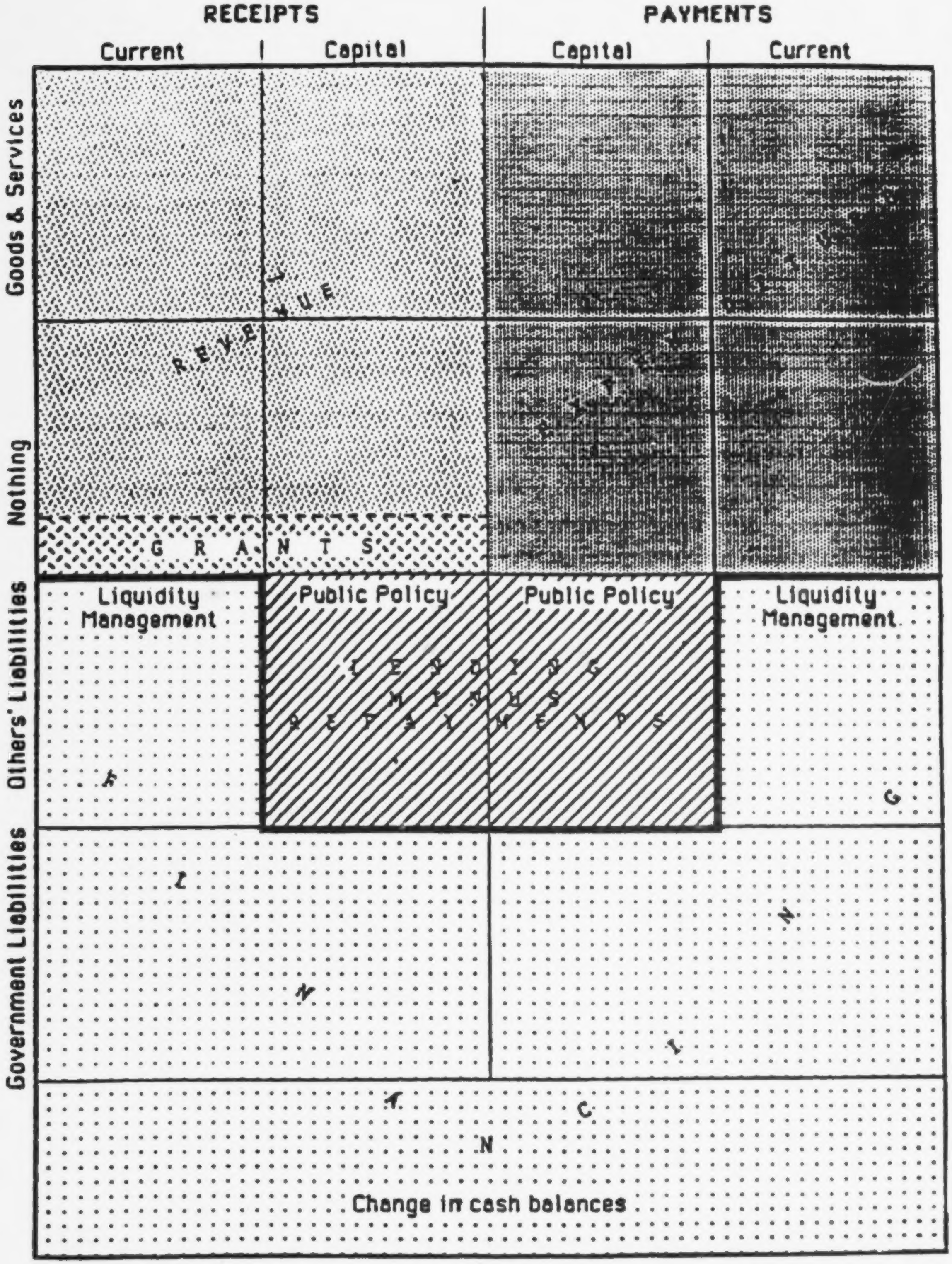
23. Classification of transactions by these criteria produces the major aggregates of the GFS analytical framework - revenue, grants, expenditure, lending minus repayments, the deficit/surplus, and financing. These are identified in Chart 2. Revenue includes all non-repayable receipts, requited and unrequited, other than those non-compulsory, non-repayable, unrequited receipts which come from other governments - domestic or foreign - and international institutions, which are classified as grants. Expenditure includes all non-repayable payments by government, whether requited or unrequited, and whether for current or capital purposes. Lending minus repayments comprises government transactions in claims upon others acquired for purposes of public policy rather than for management of government liquidity or earning a return. As may be seen, revenue plus grants, less expenditure and lending minus repayments, equals the deficit/surplus. Financing which is by definition equal in amount to the deficit/surplus, thus represents the changes in a government's obligations for future repayment and in its liquidity holdings, necessary to cover the difference between its payments for expenditure and lending and its receipts from revenue, grants, and loan repayments.

24. The deficit/surplus thus serves to indicate whether the government is covering its outlays without the need to increase its debts or draw down its liquidity holdings. Because government lending is undertaken, like government expenditures, for public policy purposes, it is grouped with government expenditures, above the deficit/surplus line, as determining the need for government financing. Grants are distinguished from other government receipts because of their special character and may sometimes be grouped with financing for particular analytical purposes.

25. The division of non-repayable receipts and payments between current and capital categories permits the calculation also of the government's current account deficit/surplus - that is, saving - as the difference between current revenues plus current grants and current expenditures. A modified saving concept which excludes receipts of current grants as different in character is calculated as the difference between current revenues and current expenditures and is referred to as own saving.

26. The current versus capital and requited versus unrequited distinctions are carried further by the classifications within the revenue and expenditure categories discussed in the classification of transactions section below.

Chart 2. Identification of major GFS aggregates in GFS analytical framework



27. Some insight into the relationship between the GFS and SNA analytical frameworks may be gained from juxtaposition of the main components of the SNA production, distribution and use of income, capital, and financial accounts against the background of the GFS analytical framework. This is presented in Chart 3 and in Chart 4, which superimposes also the balancing items - value added, operating surplus, saving, and net lending - carried from one SNA account to the next. [1]

28. Clearly demonstrated by this comparison is the broad similarity in basic classification criteria applied to transactions by both systems. Evident also within this broad similarity is the SNA's distinct grouping of transactions into accounts designed to measure its key concepts: requited non-repayable transactions involved in the output of both current and capital goods in the production account, both requited and unrequited non-repayable capital transactions in the capital account, both requited and unrequited non-repayable current transactions in the distribution and use of income account, and all repayable transactions involving either others' liabilities to the government - whether acquired for liquidity management or public policy purposes - or government liabilities.

29. The different analytical objectives of the two systems are thus reflected in the differences between the principal SNA and GFS groupings. Parts of GFS revenue and expenditure are found in the SNA production, capital, and distribution and use of income accounts. The capital portions of GFS revenue, grants, and expenditure are found in the SNA capital account, with own-account capital formation found also in the SNA production account. Both GFS lending minus repayments and financing are found in the SNA financial account. Passage between GFS and SNA concepts within these major groupings is discussed in the following sections, on classification of transactions and on bridge tables.

F. Classification of transactions

30. Because neither revenue, grants, expenditure, lending minus repayments, nor financing has a single, homogeneous effect upon the level, composition, and distribution of domestic income, product, demand, and wealth, GFS finds it necessary to classify transactions into smaller, more homogeneous components. It is at this level of homogeneous components that correspondence between the SNA and GFS is most readily established.

31. Within the major GFS aggregates, transactions are classified by the kind of activity or market segment outside government upon which they impact, that is, by changing supply-demand relationships through addition of a tax or subsidy element, by competing for goods and services or factor services in the market place, or by injecting or absorbing claims or liabilities in financial markets.

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[1] Gold and SDRs, shown as others' obligations in Charts 3 and 4, are classified as financial assets by convention although they are no one's obligations. See Chapter 10, Table 1.

Chart 3. Components of SNA accounts in GFS analytical framework

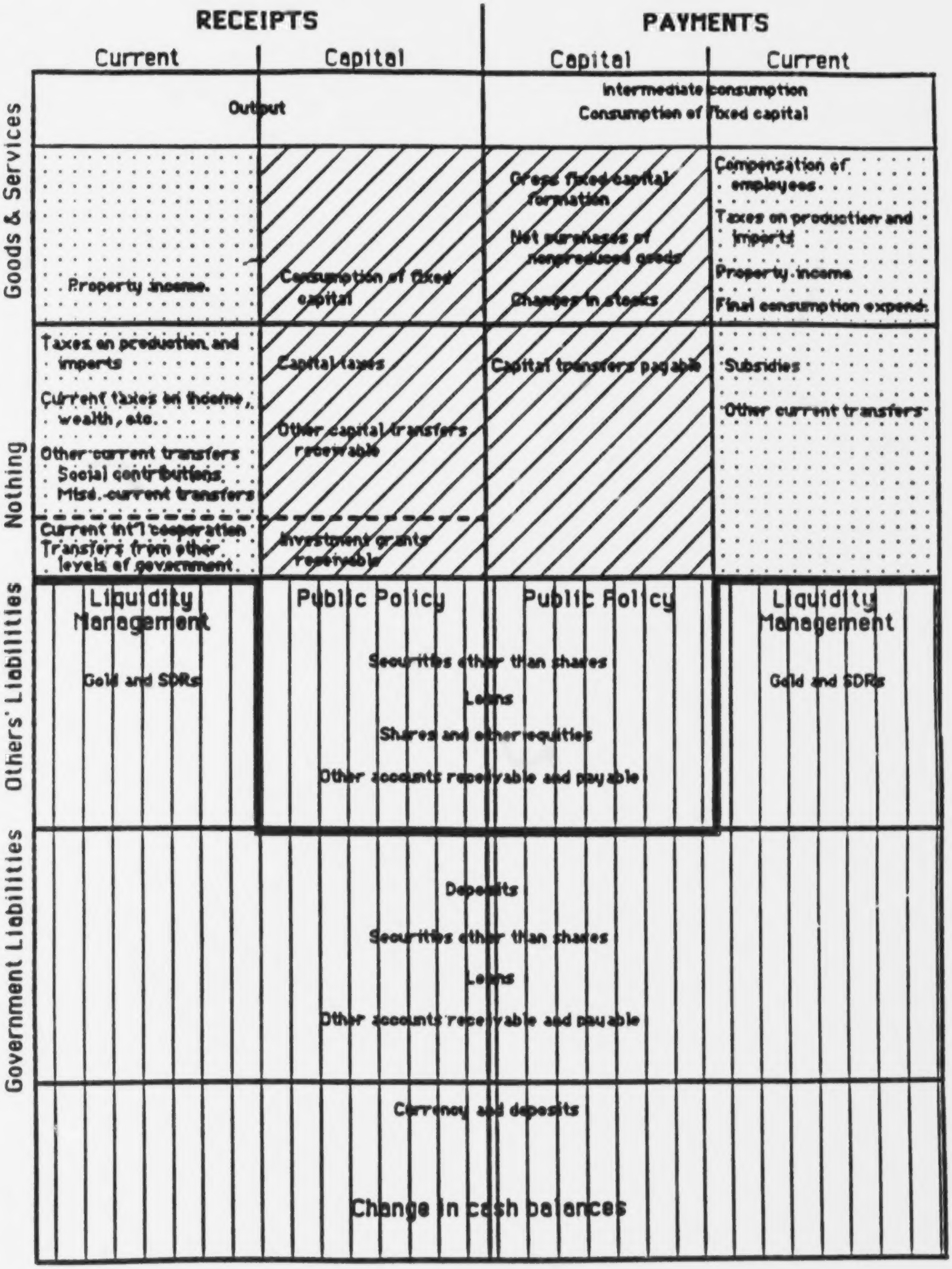
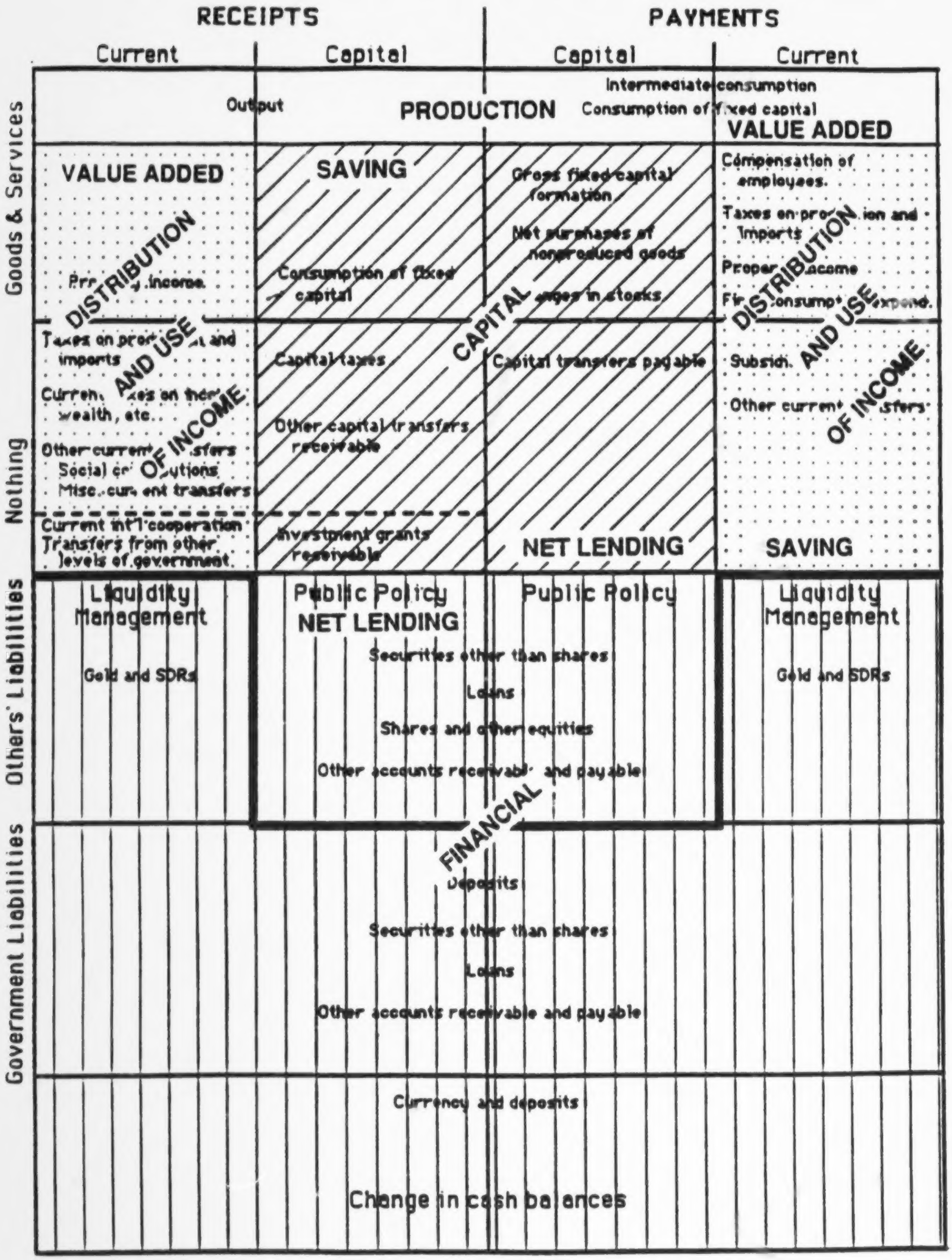

RECEIPTS
PAYMENTS
Current
Capital
Capital
Current
Goods & Services
Nothing
Others' Liabilities
Government Liabilities
Output
Intermediate consumption
Consumption of fixed capital
Property income
Consumption of fixed capital
Gross fixed capital formation
Net purchases of nonproduced goods
Changes in stocks
Compensation of employees
Taxes on production and imports
Property income
Final consumption expend.
Taxes on production and imports
Current taxes on income, wealth, etc.
Other current transfers
Social contributions
Misc. current transfers
Capital taxes
Other capital transfers receivable
Capital transfers payable
Subsidies
Other current transfers
Current int'l cooperation
Transfers from other levels of government
Investment grants receivable
Liquidity Management
Public Policy
Public Policy
Liquidity Management
Gold and SDRs
Securities other than shares
Loans
Shares and other equities
Other accounts receivable and payable
Gold and SDRs
Deposits
Securities other than shares
Loans
Other accounts receivable and payable
Currency and deposits
Change in cash balances

Chart 4. SNA accounts and balancing items in GFS analytical framework



RECEIPTS
PAYMENTS
Current
Capital
Capital
Current
Goods & Services
Nothing
Others' Liabilities
Government Liabilities
Output
PRODUCTION
Intermediate consumption
Consumption of fixed capital
VALUE ADDED
VALUE ADDED
SAVING
Gross fixed capital formation
Net purchases of nonproduced goods
Changes in stocks
Compensation of employees
Taxes on production and imports
Property income
Final consumption expend.
DISTRIBUTION AND USE OF INCOME
Property income
Consumption of fixed capital
CAPITAL
Taxes on production and imports
Current taxes on income, wealth, etc.
Other current transfers
Social contributions
Misc. current transfers
Capital taxes
Other capital transfers receivable
Capital transfers payable
Subsidies
Other current transfers
DISTRIBUTION AND USE OF INCOME
Current int'l cooperation
Transfers from other levels of government
Investment grants receivable
NET LENDING
SAVING
Liquidity Management
Public Policy
NET LENDING
Public Policy
Liquidity Management
Gold and SDRs
Securities other than shares
Loans
Shares and other equities
Other accounts receivable and payable
Gold and SDRs
FINANCIAL
Deposits
Securities other than shares
Loans
Other accounts receivable and payable
Currency and deposits
Change in cash balances

32. Revenues are divided between current and capital revenues. Current revenues are divided between taxes - comprising all compulsory, unrequited, non-repayable payments to government - and non-tax revenues. Taxes are classified by the type of activity or characteristic upon which the tax is levied: the tax base, that is income, payrolls, sales, property, imports, etc. Current non-tax revenues are classified by the nature of the payment, that is, fixed capital assets, land, strategic stocks, etc. Grants are distinguished by whether they come from domestic governments or from governments or international institutions abroad and whether they are for current or capital purposes.

33. Expenditures are classified both by economic character and by function. Economically, expenditures are classified by whether they are current or capital, whether requited or unrequited, if requited whether for wages and salaries, other purchases of goods or services, or interest, and if unrequited whether to residents or non-residents, to government or non-government, to enterprises or households and non-profit institutions. Expenditures and lending minus repayments are classified by function in accordance with the main purpose or function for which they are made, that is, defence, education, health, etc., following the same criteria as the SNA.

34. Financing and debts are classified both by the type of debt instrument used - security or non-security, long-term or short-term - and by the type of debt holder - resident or non-resident, government or non-government, bank or non-bank, enterprise or non-enterprise.

35. At this level of classification into relatively homogeneous components, there is a high degree of one-on-one correspondence between the SNA and GFS. Where there are differences, they reflect a number of aspects of each system's main focus. Thus, there are instances in both the SNA and GFS of greater disaggregation in pursuit of their primary concerns. While there is, over all, greater detail in the GFS classification of taxes, SNA concern with the impact of taxes on production necessitates subdivision of a number of GFS tax categories to identify the portion paid by enterprises, which constitutes a tax on inputs to the production process, and the portion paid by others, which is classified as other current taxes.

36. Similarly, while policy considerations restrict the GFS category for import taxes to taxes levied solely because a product crosses the border, SNA concern with separating the impact on domestic production from the impact on imports requires the addition to this category of the import-paid portion of the GFS category for domestic taxes on goods and services applicable universally to both domestic and imported products. In addition, to calculate some economic concepts, the SNA finds it necessary to subdivide some transactions - for example, casualty insurance premiums into net casualty insurance premiums and an imputed service charge which is counted as output rather than as a transfer - and to impute other transactions to represent ongoing, and sometimes unrecorded, processes, such as the consumption of fixed capital or the accumulation of unfunded pension rights.

37. Other differences between GFS and SNA classifications may arise from the registration of transactions in kind in the SNA but not in GFS, the different rerouting utilized in each system - of employer social security contributions through households in the SNA, for example, and of government units' monetary authorities transactions through the financial institutions sector in GFS - and occasional differences in the application of consolidation rules and the registration on an accrual basis in the SNA and on a cash basis in GFS.

38. These factors are reflected in the tables matching the SNA and GFS classifications of transactions in the following section on bridge tables.

G. Bridge tables

39. The correspondence between GFS and SNA classifications of transactions is set out in two bridge tables (Charts 5 and 6) designed to facilitate passage from one system to the other.

40. Organized in matrix format, the bridge tables array GFS classifications down the side and SNA classifications across the top. The corresponding classifications in the two systems are indicated by a cell completely filled in when the GFS category corresponds to the single SNA category and by cells partially filled in when a GFS category corresponds partially to each of the several SNA categories. Chart 5 covers non-repayable receipts, constituting revenue and grants received in GFS, and Chart 5 payments and repayable receipts, comprising expenditure, lending minus repayments and financing in GFS. Footnotes are provided for categories requiring subdivision for cross-classification or additional adjustments, other than cash to accrual, for the SNA. The penultimate columns and rows cover elements which are not covered by corresponding cross-classifications on the same chart, in some cases because of classification as negative receipts or negative payments.

41. In addition to facilitating conceptual comparison of SNA and GFS classifications, the bridge tables may be used as a guide to derive SNA entries from GFS data - as an operational bridge table - or to cross-check entries in the two systems. To derive SNA entries from GFS data, the values for GFS categories are entered in the indicated cells, subdivided where necessary, and supplemented in the penultimate row with any additional SNA components not covered by GFS, such as imputations, transactions in kind, and any intragovernmental transactions eliminated by GFS consolidation procedures but not by the SNA. Entries in each SNA category columns are then totalled vertically and adjusted to an accrual basis if necessary. To compare SNA values with corresponding GFS categories, the values of SNA categories are entered in the appropriate cells, subdivided where necessary, and supplemented in the penultimate column with any additional GFS components not covered by the SNA. Entries in each GFS row are then totalled horizontally and adjusted to a cash basis if necessary.

H. Alternate SNA presentations

42. While the SNA accounting rules, accounts structure, analytical framework, and classifications of transactions are necessary for consolidation with other sectors to arrive at totals for the economy as a whole, supplementary arrangements of SNA components applicable to the government sector alone are possible as a means of meeting the concerns of public finance analysts with approximations of key GFS concepts. Such rearrangements, though not applicable to other sectors, can reflect the special characteristics of government operations and motivations.

43. An alternative arrangement of SNA components, grouped together by key GFS concepts in an SNA accounting format approximating the GFS analytical framework, is presented in Chart 7. The SNA components correspond to items presented in the columns of the bridge tables, while the key GFS concepts constitute the main groupings of GFS items presented in the rows. Chart 7 incorporates a number of features representing departures from SNA practice.

Chart 5

GFS-SNA Bridge Table
Revenue and Grants

■ GFS correspondence with single SNA category

◢ GFS partial correspondence with several SNA categories

			SNA	Markt Outpt		Taxes on products								Other current transfers						Capital transfrs					
			GFS	Market producers	Nonmarket producers	VAT-type taxes (c)	Import duties	Taxes on imports excl VAT & duties (c,d)	Export taxes (c)	Taxes on prod excl VAT,imp,exp dut (c,d)	Other taxes linked to production (a)	Taxes on income	Other current taxes (a)	Compulsory social contributions (g,h)	Voluntary social contributions	Casualty insurance claims (c)	Current transf. between levels of govt.	Current international cooperation	Other misc. current transfers (c)	Capital taxes (b)	Investment grants (j)	Other capital transfers (i,j)	Property income	GFS items not incl. in SNA items shown (e,f)	Total
REVENUE	CURRENT	TAX	1.1 Taxes on income, individual									■													
			1.2 Taxes on income, corporate									■													
			1.3 Taxes on income, unallocated									■													
			2.1 Social security contributions, employee											■											
			2.2 Social security contributions, employer											■											
			2.3 Social security contributions, self-emp.											■											
			2.4 Social security contributions, unallocated											■											
			3 Taxes on payroll, work force								■														
			4.1 Recurrent taxes on immovable property (a)								◢		◢												
			4.2.1 Recurrent taxes on net wealth, indiv.										■												
			4.2.2 Recurrent taxes on net wealth, corp.										■												
			4.3 Estate, inheritance, & gift taxes (b)																	■					
			4.4 Taxes on financial & capital transactions										■												
			4.5 Nonrecurrent taxes on property (b)																	■					
			4.6 Other recurrent taxes on property (a)								◢		◢												
			5.1 Gen. sales, turnover, value-added taxes (c)			◢		◢		◢															
			5.2 Excises (d)					◢		◢															
			5.3 Profits of fiscal monopolies							■															
			5.4 Taxes on specific services (d)					◢		◢															
			5.5.1 Business & professional licenses								■														
			5.5.2 Motor vehicle taxes (a)								◢		◢												
			5.5.3 Other taxes on use, etc. (a)								◢		◢												
			5.6 Other taxes on goods & services (a)								◢		◢												
			6.1 Import duties				■																		
			6.2 Export duties						■																
			6.3 Profits of export or import monopolies (c)					◢	◢																
			6.4 Exchange profits								■														
			6.5 Exchange taxes								■														
			6.6 Other taxes on internat'l trade, transact. (a)								◢		◢												
			7.1 Poll taxes										■												
			7.2 Stamp taxes (a)								◢		◢												
			7.3 Other taxes not elsewhere classified (a)								◢		◢												
		NONTAX	8.1 Surpluses of departmental enterprises (e)	◢																			◢	◢	
			8.2 Property income from public enterprises																				■		
			8.3 Other property income																				■		
			9 Admin. fees, charges, nonindustrial sales		■																				
			10 Fines and forfeits																■						
			12 Other nontax revenue (f)												◢	◢			◢					◢	
	CAPITAL		13 Sales of fixed capital assets (f)																					■	
			14 Sales of stocks (f)																					■	
			15 Sales of land & intangible assets (f)																					■	
			16.1 Capital transfers from nongov. resdnts																			■			
			16.2 Capital transfers from nongov. abroad																			■			
GRANTS			17.1 Current grants from abroad															■							
			17.2 Capital grants from abroad																		■				
			18.1 Current grants from other levls of gov.														■								
			18.2 Capital grants from other levls of gov.																		■				
			19.1 Current grants from supran'l authorits.															■							
			19.2 Capital grants from supran'l authorits.																		■				
			SNA items not in GFS items above (g,h,i)	■	■									■			■	■	■		■	■			
			Total																						

(a) Paid by business vs. nonbusiness. (b) Differing current-capital distinction. (c) Detail of breakdown.
(d) Paid on imports vs. domestic products. (e) Gross in SNA. (f) Includes receipts shown as negative payments in SNA.
(g) Includes imputations. (h) Consolidation differences. (i) In-kind transactions. (j) Includes cancellation of debt.

Chart 6

GFS-SNA Bridge Table
Expenditure, Lending Minus Repayments, Financing

■ GFS correspondence with single SNA category

◢ GFS partial correspondence with several SNA categories

		SNA / GFS	Intermediate consumption (g,h,j)	Compensation of employees (g,h)	Property income (payable) (a)	Subsidies on products (payable)			Other subsidies linked to production (payable) (g)	Social benefits in cash	Misc. current transfers (b)	Capital transfers payable (i)	Changes in stocks (f)	Gross fixed capital formation	Net purchases of nonproduced nonfin. assets	Securities other than shares	Loans	Shares and other equity	Gold and SDRs	Currency	Transferable deposits	Other deposits	Other accounts receivable & payable	GFS items not incl. in SNA items shown (d)	Total
						Import subsidies (g)	Export subsidies (g)	Other (g)																	
EXPENDITURE	CURRENT	1.1 Wages and salaries		■																					
		1.2.1 Emplr contrib, soc sec, oth lvls gov		■																					
		1.2.2 Emplr contrib, pens, welf outside gov		■																					
		1.3 Other purchases of goods & servcs. (a,b)	◢		◢						◢														
		2 Interest payments			■																				
		3.1.1 Subsidies to nonfin. pub. enterprises (c)				◢	◢	◢	◢																
		3.1.2 Subsidies to financial institutions (c)				◢	◢	◢	◢																
		3.1.3 Departmental enterprise deficits (d)	◢	◢	◢			◢	◢				◢											◢	
		3.1.4 Subsidies to other enterprises (c)				◢	◢	◢	◢																
		3.2 Transfers to other levels of nat'l gov.									■														
		3.3 Transfers to nonprofit institutions									■														
		3.4 Transfers to households								■															
		3.5.1 Cur. transf. abroad, govts, int'l orgs									■														
		3.5.2 Cur. transf. abroad to supran'l auth.									■														
		3.5.4 Other current transfers abroad									■														
	CAPITAL	4 Acquisition of fixed capital assets (e)	◢	◢	◢									◢											
		5 Purchases of stocks (f)											■												
		6 Purchases of land and intangible assets													■										
		7.1 Domestic capital transfers										■													
		7.2 Capital transfers abroad										■													
Lend. minus Repay		8 Domestic lending minus repayments (c)														◢	◢	◢							
		9 Lending minus repayments abroad (c)														◢	◢	◢							
FINANCING	DOMESTIC	1 Long-term bonds														■									
		2 Short-term bonds and bills														■									
		3 Long-term loans, n.e.c.															■								
		4 Short-term loans and advances, n.e.c.															■								
		5 Other liabilities (c)														◢	◢			◢	◢	◢	◢		
		6 Changes in cash, dep, secs for liquidity (c)														◢				◢	◢	◢			
	ABROAD	7 Long-term bonds														■									
		8 Short-term bonds and bills														■									
		9 Long-term loans, n.e.c.															■								
		10 Short-term loans and advances, n.e.c.															■								
		11 Other liabilities (c)														◢	◢					◢	◢		
		12 Changes in cash, dep, secs for liquidity (c)														◢				◢	◢	◢			
		SNA items not in GFS items above (g,h,i,j)	■	■	■	■	■	■	■	■	■	■	■	■	■				■	■			■		
		Total																							

(a) Includes rent on leased or rental lands. (b) Includes net casualty insurance premiums. (c) Detail of breakdown. (d) Shown gross in SNA. (e) Includes own-account capital formation. (f) Shown net in SNA. (g) Includes transactions in kind. (h) Includes imputations. (i) Includes assumption and cancellation of debt. (j) Reflects receipts shown as negative payments.

Chart 7. GFS-based presentation of the accounts of general government

CURRENT ACCOUNT

Uses	Resources
CURRENT EXPENDITURE	TAXES, GFS DEFINITION
Intermediate consumption	Taxes on production and imports (receivable)
	Taxes on products
Compensation of employees	Value added (VAT) type taxes
	Taxes on imports excl. VAT type taxes
	Import duties
	Taxes on imports excl. VAT and duties
Property income	Export taxes
Subsidies	Taxes on products, except VAT type, import and export taxes
Subsidies on products	Other taxes linked to production
Import subsidies	Less: Taxes on production and imports (payable)
Export subsidies	Current taxes on income and wealth, etc.
Other subsidies on products	Taxes on income
Other taxes linked to production	Other current taxes
Less: Subsidies (receivable)	
Social benefits in cash	Compulsory social contributions
Miscellaneous current transfers	
	Capital taxes
	NON-TAX REVENUE
	Market output
	Market producers
	Non-market producers
	Property income (receivable)
	Voluntary social contributions
	Casualty insurance claims
OWN SAVINGS	Other miscellaneous current transfers
	OWN SAVINGS
	CURRENT GRANTS
	Current transfers between levels of government
SAVING	Current international co-operation

Chart 7. GFS-based presentation of the accounts of general government (concl.)

CAPITAL ACCOUNT

Uses	Resources
CAPITAL EXPENDITURE	SAVING
Capital transfers payable	CAPITAL GRANTS
Changes in stock	Investment grants
Gross fixed capital formation	UNOFFICIAL CAPITAL TRANSFERS
Net purchases of non-produced assets	Other capital transfers (receivable)
LENDING MINUS REPAYMENTS	
(Net acquisition of financial assets:)	
Securities other than shares	
Loans	
Shares and other equity	OVERALL DEFICIT/SURPLUS

FINANCE ACCOUNT

FINANCING (= OVERALL DEFICIT/SURPLUS)	(Net incurrence of financial liabilities)
(Net acquisition of assets:)	Currency and deposits* I. of which: - denominated in domestic currency - denominated in foreign currency
Gold and SDRs*	
Currency and deposits I. of which: - denominated in domestic currency - denominated in foreign currency	Securities other than shares
	Loans
II. of which liability of - resident institutions - rest of the world	Other accounts receivable and payable
Other accounts receivable and payable	

* Routed through financial corporation sector.

1. To move closer to GFS consolidation rules eliminating transactions within government and focusing only on payments to and from the rest of the economy, taxes paid and subsidies received by government are shown only as negative receipts and payments, respectively.

2. In kind transactions and imputations, such as consumption of fixed capital, are omitted.

3. Transfers from official sources are identified separately as grants.

4. Besides the government in acquiring securities, loans and equities to promote public policy purposes, rather than to earn a return or manage the government's liquidity, government transactions in financial assets acquired for public policy purposes are combined in a separate lending minus repayments category grouped with expenditure rather than with government borrowing. Acquisitions for other than policy purposes are generally restricted to sinking funds balancing the maturities and returns of assets and liabilities and State and local governments employing temporary excess balances.

6. All government receipts of compulsory, unrequited, non-repayable payments are grouped together to arrive at the GFS and OECD Revenue Statistics concept of total taxes, useful as a ratio of GDP or national income for comparison between countries or over time. This concept of total taxes includes compulsory - but not voluntary - social contributions as well as estate and gift taxes and non-recurrent taxes on property, classified as capital taxes in the SNA but as current taxes in GFS.

7. To measure whether government operations are sustained without resort to increased debt or the drawing down of liquidity balances, SNA components are arranged to yield a measure of the overall deficit/surplus. This is achieved by subtracting from the balance emerging at the end of the SNA capital account (net lending) the government's net acquisition of financial assets for public policy purposes, embracing securities, loans, and equities (GFS lending minus repayments). The resulting overall deficit/surplus would thus be met by the remaining items in the SNA financial account: the net incurrence of liabilities and the net decrease in holdings of gold, SDRs, currency, deposits, accounts receivable, and any other holdings acquired for liquidity management purposes.

44. Another possible SNA rearrangement involves institutional sectorization rather than transaction flows. To avoid losing in consolidation the key financial indicator representing central bank lending to the government and its non-financial public enterprises, GFS makes use of the non-financial public sector, rather than the entire public sector, as an appropriate analytical aggregation. In other circumstances, where government owned or controlled development banks carry out government policies through lending financed by the central bank or by government owned or controlled commercial banks, the non-monetary public sector, excluding only the central bank and government owned or controlled monetary institutions from the entire public sector, may be utilized as the appropriate analytical aggregate. For both the SNA and GFS, the flexible combination of parts of the government or the public sector can help meet the analytical needs of particular circumstances, in addition to meeting the more global requirements for the measurement and analysis of the entire government, the public sector, or the economy as a whole.

Annex 5: CHANGES IN STOCKS AND HOLDING GAINS*

Introduction

1. This chapter explains the method by which changes in the value of stocks held by producers are measured in the System. The stocks held by producers consist of three main types:

(1) stocks of raw materials, semi-processed or finished goods purchased by producers which are destined to be consumed as intermediate inputs into their processes of production;

(2) work-in-progress: that is goods which have already been processed by the producer who holds them but which still require further processing before they reach a state in which they would normally be marketed or delivered to users;

(3) stocks of goods produced as outputs which are ready for sale or delivery to users; stocks of outputs may include raw materials and semi-processed goods as well as finished goods.

2. For convenience, the treatment of stocks of output is considered first in this chapter, followed by work-in-progress and stocks of inputs.

3. When the prices of goods held in stocks change significantly while they are in stock, nominal holding gains, or losses, are automatically generated. These gains can be very substantial in inflationary conditions and they need to be separated from the profit which accrues from engaging in production; that is, the operating surplus which accrues from physically transforming goods as distinct from merely holding them unchanged. Holding gains accrue to the producer in his capacity as owner of stocks of goods and do not arise from his productive activities. The System therefore takes great pains to ensure that holding gains are systematically excluded from the measurement of output, value added and the operating surplus at least in principle. It is necessary to explain in some detail how the System's measure of the change in the value of stocks achieves this objective. It is also necessary to introduce the concept of a holding gain and to explain how nominal holding gains, or losses, are treated in the context of the production accounts. This topic is closely linked to the treatment of interest in the System as large nominal holding gains in a period of high inflation are effectively the source out of which high nominal interest charges can be met.

Changes in producers' stocks

4. Goods produced as outputs are typically not all sold at the same moment as they are produced and they are liable to spend varying amounts of time in the stocks held by producers. As a result, the value of the sales recorded by an enterprise within a given accounting period does not usually coincide with the value of the output produced. First, the quantities sold may be greater or less than the quantities produced, the difference being matched an equal decrease or

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the author.

increase in the quantities of goods held in stock. Second, when a good is held in stock for some time, the price at which it is eventually sold may be different from the market price prevailing at the time it was produced. It is the latter price which must be used to value output in the System. The sales price may be significantly different from the production price as a result of general inflation but, even in the absence of inflation, differences may arise as a result of changes in relative prices. Thus, the value of sales may diverge from the value of output not merely because of changes in the quantities of goods held in stock, but also because of holding gains or losses which may accrue on the goods while they are held in stock. These two factors may interact in a complex fashion so that accounting for changes in stocks needs to be elaborated very carefully in the System.

5. In practice, it is usually not feasible to record the value of output directly and it is customary in both business accounts and economic accounts to derive the value of output indirectly by adjusting the value of the sales recorded by an enterprise by an appropriate measure of the change in the value of stocks. Unfortunately, the procedures followed by business accountants and economic accountants are not the same, and their different treatments of changes in stocks constitute one of the major reasons for the discrepancies or divergences between profits as measured in business accounts and economic accounts. For this reason, it is also necessary to indicate in broad terms how the treatment of changes in stocks in business accounts differs from that adopted in the System and what are the consequences for rates of profit as recorded in the two types of accounts.

6. Although the treatment of changes in stocks first arises in the context of the production account, it has important implications for the treatment of inflation in the rest of the system, including the income and outlay accounts and the balance sheets and reconciliation accounts. It is therefore necessary to examine the treatment of changes in stocks for more than one angle in order to establish the necessary links with the other parts of the System.

7. Although this section is concerned with the treatment of stocks of goods produced as outputs, the principles involved apply equally to the treatment of stocks of raw materials and semi-processed goods held by producers. It will not be necessary, therefore, to repeat the detailed analysis of this section when the relationship between intermediate consumption and purchases of materials or other inputs is examined later in this chapter. Mutatis mutandis, the conclusions reached here apply to stocks of materials or other goods destined to be used as inputs. In order to understand the complex issues involved, however, it is preferable to examine stocks of outputs, including work-in-progress separately from stocks of inputs.

The System's measure of changes in stocks

8. The purpose behind the System's measure of changes in stocks is quite simply to enable the correct transition to be made from the value of sales as recorded in the accounts of an establishment or enterprise to the value of output as required by the System. Indeed, the value of changes in stocks in the System may even be defined as the difference between the value of sales and the value of output resulting from a given process of production.

9. In order to highlight the issues involved, the analysis of the section is confined to the case of an establishment which produces a single good as an output. The conclusions may be generalized without difficulty to an enterprise

producing several goods, or indeed to an entire sector or industry. For convenience, the accounting period will be assumed to be a year which can be divided into n sub-periods, such as 4 quarters, 12 months, or 52 weeks. In order for the conclusions to be relevant under a wide range of economic circumstances, it is necessary to allow for the possibility of significant changes in prices occurring between the beginning and end of the accounting period. In the illustrative numerical examples used later, it will be assumed that prices more than double between the beginning and the end of the accounting period. Although such a rate of inflation may be exceptional, annual inflation rates of this order of magnitude have occurred in many countries at one time or another, while much higher rates have been recorded in a few countries. Furthermore, the assumption of a high rate of inflation has a distinct advantage in that it throws into sharp relief the underlying conceptual and measurement problems which may not always be fully appreciated in countries with moderate or low rates of inflation. In any case, the conclusions reached in this section are equally valid when there is no inflation, zero inflation being merely one particular rate of inflation from accounting viewpoint.

10. Let us assume, that the total accounting period is divided into n sub-periods for which data on the quantities produced and sold, and also the basic prices at which they are sold, are available, and

let X_i = quantity produced in sub-period i

Z_i = quantity sold in sub-period i

P_i = basic price in sub-period i

S_i = change in the quantity of stocks held during the course of sub-period i

i = 1, 2, ... n

11. Assuming also that no goods are wasted, accidentally destroyed or otherwise disposed of, it follows that

$$s_i = x_i - z_i \qquad (1)$$

12. The System defines the value of the change in the stocks of goods produced as outputs during the accounting period as a whole as the value of sales minus the value of output that is,

$$\text{the SNA measure of the value of the change in stocks} = \sum_{i}^{n} P_i x_i - \sum_{i}^{n} P_i z_i \qquad (2)$$

$$= \sum_{i}^{n} P_i s_i \qquad (3)$$

13. Thus, the value of the change in stocks may be calculated by valuing each individual change in the quantity of stocks at the basic price prevailing at the time the change occurs, and then cumulating the values of the individual changes over the entire accounting period. For convenience, the price P_i is assumed to be constant within each sub-period i, bearing in mind that, in principle, the sub-periods can be made as short as we please.

14. It can be seen from (3) that the SNA measure of the value of stock changes requires information on prices and stock changes only it does not require information on the levels of stocks at any point in the accounting period.

15. An essential feature of the SNA treatment of stock changes is that, once a good is produced, it is assigned the same value whether it is immediately sold on the market at the current basic price P_i or whether it is entered into stock. Indeed, by insisting that all output should be valued consistently in this way, the way in which changes in stocks have to be treated in the System follows logically. At the same time a good is withdrawn from stock and sold, the (negative) value of the stock change is, by definition, equal to the price at which it is sold so that the output recorded at the time of sale is automatically zero, the value of the output having already been recorded earlier when the good originally entered into stocks.

16. The SNA measure of the value of stock changes may appear deceptively simple but in practice its properties are by no means transparent and it may be conjectured that it is sometimes misinterpreted and confused with another measure, namely the value of the physical change in stocks measured at the average price of the period. In order to elucidate the properties of the SNA measure and its behaviour under different kinds of circumstances it will be systematically compared and contrasted with the volume measure of stock change in the next section. After that, the relationship between the SNA measure and the change in the value of stocks between the beginning and end of the accounting period as recorded in the balance sheets of the System will be considered.

The SNA measure contrasted with a volume measure

17. A volume measure of stock changes may be obtained by valuing the quantity changes at a fixed price. It is common to use the average price prevailing over the accounting period as a whole for this purpose, and a simple arithmetic average of the pi's

$$\text{namely } \bar{p} = \sum_{i}^{n} P_i/n \qquad (4)$$

will be used for illustration here. The difference between the SNA measure and the volume measure is essentially that the entries to, and withdrawals from, stocks are valued at different prices: thus,

$$\text{the volume measure of change in stocks} = \sum_{i}^{n} \bar{p}s_i = \bar{p} \sum s_i \qquad (5)$$

It is clear that s_i must be equal to the total change in the quantity of stocks held between the beginning and end of the accounting period as a whole so that we may write

$$s_i = s_n - s_o \qquad (6)$$

where S_i refers to the level of stocks held at the end of sub-period i. Thus, the volume measure may be written as:

$$\text{Volume measure of change in stocks} = \bar{p}\,(s_n - S_o) \qquad (7)$$

18. In practice, the volume measure is important for two reasons. First, its calculation requires only three pieces of information, p, S_n and S_o, so that it is not necessary to keep records of individual stock movements within the accounting period. Second, because it is so much easier to calculate than the SNA measure, it is frequently used as a proxy for, or estimate of, the SNA measure. It is therefore important to examine the relationship between the SNA measure and the volume measure rather carefully. The difference between them is given by subtracting (5) from (3) above; namely,

$$\sum_{i}^{n} (P_i s_i - p s_i) \qquad (8)$$

which may be recognized statistically as the covariance between P_i and s_i multiplied by n. A number of conclusions may be drawn from this.

(a) In general, there will be no difference between the SNA measure and the volume measure of P_i and s_i are uncorrelated.

(b) One special case in which the measures coincide is when there are no price changes - i.e., the P_i's are all constant.

(c) The other special case in which the measures coincide is when the s_i's are all constant: that is, when the quantities of stocks grow, or decline, at a constant arithmetic rate over the accounting period as a whole.

19. It should be noted that either (b) or (c) is sufficient on its own to ensure coincidence between the two measures. It does not follow that inflation, i.e., a systematic variation in the P_i's, will necessarily cause the two measures to diverge; it is also necessary to have some variation in the s_i's - that is, in the rates at which the stocks are accumulated.

20. In practice, the correlation between the P_i's and the s_i's may be either positive or negative. For convenience, it may be assumed that the P_i's are increasing over time: that is, that there is inflation. In that case, a positive correlation implies that the s_i's are greater towards the end of the accounting period than towards the beginning. As the s_i's are just as likely to be negative as positive, a strong positive correlation will be generated between the P_i's and the s_i's when the s_i's in the early part of the accounting prior are negative and become positive in the later part of the period. This implies that the quantities held in stock actually fluctuate, being run down in the early part of the accounting period and replenished in the later part of the period. This pattern of stock fluctuations combined with inflation entails that the SNA measure will exceed the volume measure. Moreover, it should be noted that there is upper limit in principle to the amount of which the SNA measure will exceed the volume measure. One special case worth noting in this context is where the quantities held in stock fall during the early part of the period and then return at the end of the accounting period to exactly the same level as at the beginning. The volume measure must be zero in these circumstances (whatever average price is used) whereas the SNA measure will register a positive value for change in stocks under the conditions assumed.

21. If the stock fluctuations take the opposite from (namely, stocks are first built up and then subsequently run down again) the SNA measure will be less than the volume measure. As will be seen later in connection with work-in-progress, an important special case is one in which stocks are initially zero, are built up in the early part of the period and then subsequently run down to zero at the end of the accounting period: in this case, the volume measure must be zero whereas the SNA measure may record a large negative value during the period high inflation.

22. In general, it may be concluded that the volume measure is likely to provide a satisfactory approximation to the SNA measure in the absence of inflation or in the absence of the marked fluctuations in stocks. On the other hand, when both inflation and fluctuations are present, there is liable to be a serious divergence between the two measures. In order to obtain an impression of the orders of magnitude involved, it is useful to refer to the illustrative data contained in table .1. Four examples are given in this table. The first covers the situation in which the quantities held in stock grow at a linear rate throughout the accounting period, and it can be seen that the SNA and volume measures coincide. The three other examples, B, C and D in the table .1, illustrate the effects of fluctuations in stocks combined with rapid inflation. In case B, P_i and s_i are negatively correlated with the sequence that the SNA measure is -80 while the volume measure is +113; in case C, P_i and s_i are positively correlated with the consequence that the SNA measure is 220 while the volume measure is zero; in case D, P_i and s_i are negatively correlated, the SNA measure being -240 while the volume measure is zero. The other figures presented in table .1 are utilized later in this section.

23. Given that the SNA and volume measures may diverge significantly in this way, it is necessary to consider what interpretation can be placed on the difference between them. As stated at the beginning of this section the SNA measure accounts for the difference between the value of the sales and the value of the output within a given accounting period. There are two components to this difference. The first reflects the difference between the total quantities sold and the total quantities produced during the period, and this component is adequately measured by the volume measure as defined above. The second component is attributable to differences in the shapes of the frequency distributions of quantities produced and quantities sold over the various sub-periods of the accounting period. Using the subscript i as a measure of time during the accounting period, the average time at which units are produced and the average time at which they are sold may be calculated. If the two average times do not coincide when prices are rising over time, the average price at which units are sold will also not coincide with the average price at which they are produced, even though the same basic price P_i is being used at any given moment of time to value quantities produced and quantities sold.

24. When the average prices at which the goods are produced and sold are not the same because of differences in the patterns of production and sales over time, it is not sufficient to derive the value of output from the value of sales by adjusting simply for differences between the quantities of goods sold and produced. It is also necessary to revalue from the average sales price to the average production price. The SNA measure of the value changes in stocks makes both the quantity adjustment and the average price adjustment simultaneously without differentiating between them. It is for this reason, of course, that the SNA measure will diverge from the volume measure when there are significant differences between the average prices at which the same goods are produced and sold.

25. The revaluation from one average price to the other is illustrated clearly by examples C and D in table .1 where the quantities produced and sold are the same over the accounting period as a whole, the level of stocks being zero at both the beginning and the end of the accounting period. In case D, for example, stocks are built up in the first three periods to be sold off completely in the fourth period, so that the price at which the goods are sold is higher than the average price at which they were produced. In this example the value of sales exceeds that of output by 240 and the SNA measure of the value of change in stocks functions purely as a valuation adjustment, there being no difference in the total quantities produced and sold over the accounting period as a whole.

26. In general, therefore, the difference between the SNA measure and the volume measure may be interpreted as a valuation adjustment which may be needed in addition to any adjustment for differences in the total quantities produced and sold.

27. In principle, the SNA measure should be decomposed into these two separate components when trying to balance uses and resources in real terms. However, it must be noted that the SNA measure is difficult to calculate directly in practice, and for this reason the volume measure is frequently used as a proxy for it, so that its decomposition, although theoretically desirable, is often not feasible. Nevertheless, it is recommended that the decomposition should be attempted when large fluctuations in stocks occur in a period of high inflation.

Changes in stocks, holding gains and balance sheets

28. In order to complete the discussion of changes in stocks and to establish the necessary links between the production accounts and other accounts in the System, it is necessary to consider how the SNA measure of change in stocks relates to the change in the value of the stocks between the beginning and end of the accounting period as recorded in the opening and closing balance sheets. In the System, the goods or assets recorded in the balance sheets are always valued at current market prices.

29. The accounting relationship between the SNA measure and the change in the value of stocks in the opening and closing balance sheets may be summarized as follows:

SNA measure of the change in stocks	+	Value of all realized and unrealized nominal holding gains on stocks	=	Change between the beginning and end of the accounting period in the value of stocks in the balance sheets

30. In order to explain the nature of this accounting identity, it is necessary to introduce the concept of a nominal holding gain. Nominal holding gains, or losses, are generated by changes in the prices of goods while they are held in stock. The nominal holding gain or loss accruing between two specified points of time on a unit of a good held in stock is equal to the increase or decrease in the market price of that good between the two points of time. The price at the second moment of time must refer to a good which is physically identical to the good at the first moment. Holding gains do not include that part of the change in the value of a good which may be attributable to some process of physical transformation, whether

improvement or deterioration, due to the passage of time itself (for example, the maturing of wine). If the good is withdrawn from stock and sold, or used for production or consumption, at the second moment of time the holding gain is said to be realized at that point. If the good remains in stock at the second period of time (for example, the time at which a balance sheet has to be compiled) the holding gain is said to be unrealized.

31. There is evidently a close connection between holding gains and the measurement of changes in stocks in the SNA. If a unit of a good is entered into stock when it is produced at price P_i and then is subsequently withdrawn from stock and sold at price P_j, the nominal holding which is realized is (P_j-P_i). From the point of view of the System, the output of the good is equal to P_i, the sale is equal to P_j, while the change in the value of the stocks is (p_i-P_j). In this very simple example, therefore, the SNA measure of stock change is equal to the amount of the realized holding, but with the sign reversed. In effect, the SNA measure removes the holding gain from the sales price in order to value the good at the price prevailing when it was produced.

32. Let us suppose initially that the accounting period is sufficiently long as to embrace all entries into stocks and their subsequent withdrawals. It follows from the previous paragraph that the SNA measure of the value of changes in stocks in this case has to be equal to the total holding gains, or losses, realized during the period but with the sign reversed algebraically. There is a sense in which it can be argued that the ultimate purpose of the SNA treatment of stocks in the very long run is essentially to eliminate holding gains from the value of sales. This may be illustrated by referring to example D in table .1 where there are no goods in stock either at the beginning or the end of the accounting period, so that all the goods which enter stock are withdrawn again before the end of the period.

33. While this example may appear at first sight to be rather improbable special case, it turns out to be very important in practice. If production proceeds in cycles, or discrete projects, which take some time to complete, the entire production cycle may be completed within a single accounting period, thereby generating a cycle in which stocks of output are gradually built up from zero to be sold off completely before the end of the period. This may happen in construction, for example, if a project is started and completed within a year, or it may happen in agriculture. During inflation, it then becomes imperative to take explicit account of the cyclical variation in the work-in-progress.

34. In general, however, production and stock cycles are not completed within a single accounting period and some goods enter stock in one period to be withdrawn later in a subsequent accounting period. In this case, which is much more common, the simple complementary relationship between holding gains as the SNA measure of stock change no longer holds. While the sum of the two continued to be equal to the change in the value of stocks between the opening and closing balance sheets, the relationship between them may take a variety of different forms depending not merely on the movements of stocks which take place within the accounting period, but also on the levels of stocks at the beginning and end of the period.

35. Table .2 brings together the relevant data from table .1 in a summary form. The data in table .2 illustrate the important point that the change in the value of stocks between the opening and closing balance sheets decomposes into the SNA measure of stock change and holding gains and not into the volume measure of stock change and holding gains. The latter decomposition holds only in the special case

in which the SNA measure and the volume change coincide. As explained in the previous section, the two may be expected to coincide when the level of stocks varies at a linear rate, or approximately so, without any significant fluctuations in stocks. When there are major fluctuations in stocks, however, as in examples B, C and D in tables .1 and .2, then the sum of the volume change plus holding gains may exceed, or fall short of, the change in the balance sheet values of a considerable amount.

36. As already stated, the volume measure of stock change calculated at the average prices of the period is often used as a proxy for the SNA measure because not enough information is available on stock movements throughout the accounting period. Clearly, estimates of holding gains which are obtained by subtracting the volume measure from the change in the balance sheet values can be expected to be satisfactory only under the conditions in which the volume measure itself may be expected to provide a close approximation to the SNA measure.

37. Finally, it is useful to establish a connection between the size of the nominal holding gains on stocks and the nominal interest charges which are likely to be incurred as a result of holding the stocks. This helps to link the production accounts with the other accounts of the System. In the examples in table .1, the price of the good is assumed to rise from 0.6 to 1.4 over the four sub-periods covered; this represents a total increase of 1343 per cent, or 23.6 per cent per sub-period. Assuming that the nominal interest rate is equal to this rate of inflation (i.e., a zero rate of interest using the good as numeraiare), the interest charges on the values of the stocks held at the beginning of each sub-period can be calculated, and these are also shown for purposes of illustration in table .1. When summed over the accounting period as a whole, it can be seen that the resulting interest charges are of the same order of magnitude as the total holding gains accruing over the period as a whole. The difference mainly reflect differences in the exact times at which the funds are assumed to be borrowed and repaid and the exact times at which the goods are assumed to be produced and sold. Thus, although substantial nominal holding gains may accrue during periods of high inflation, the amounts involved are likely to be counter-balanced by nominal interest charges of roughly the same order of magnitude assuming that nominal interest rates are fixed in such a way as to keep real interest rates very small. This point will be taken up again in connection with the income and outlay accounts of the System.

Changes in stocks in business accounts

38. The value of output in business accounts is also usually calculated as the sum of sales plus change in stocks in order to take account of difference between the quantities produced and the quantities sold within a given accounting period. However, there is a fundamental difference between business and economic accounts in the way in which goods held in stock are valued, the normal practice in business accounting being to value goods held in stock at the price at which they were acquired (i.e., at historic cost) if this is lower than the current price. The consequence of this treatment is that when a good enters stock and is subsequently withdrawn and sold at a higher price, the value of the change in stock is recorded as zero. When calculating the value of output, therefore, no deduction is made from the sale price of the holding gain which accrued while the good was held in stock. As a result, the holding gain is included in the value of output and hence also in profit. Thus, the profits which are notionally attributed to production including holding gains which, by definition, do not arise from production. In

periods of high inflation, profit is recorded in business accounts is liable to exceed the operating surplus as recorded in the System by a substantial margin as a result of the inclusion of holding gains in the former.

39. It is neither necessary nor appropriate to go into details of business accounting practices in the present context, but it is useful to add some further points for clarification. As goods withdrawn from stock are valued at historic costs in business accounts, it is necessary to know which goods are actually withdrawn, or at least to make an assumption about the order in which they are withdrawn. The most common assumption is FIFO, or first-in-first-out, which implies goods are withdrawn from stock in the same order as they entered. This implies that withdrawals are valued at current prices in practice, as in the SNA, provided that the level of stocks is not depleted. The provision is important because, under LIFO, the goods which remain in stock are those which are assumed to have been there for the longest periods of time. If stocks are run down, therefore, goods start to be withdrawn which are assumed to have been there for a very long time and which may therefore be valued at very low prices indeed when historic costs are used. Thus, even under LIFO substantial holding gains may be included in profits if stocks are seriously depleted.

40. Finally, in situations of very high inflation, the use of NIFO has been proposed, namely, next-in-first-out. This implies valuing goods withdrawn from stock at the prices expected to prevail at some point in the near future.

41. Other, and more sophisticated, ways of valuing changes in stocks, may be found in business accounts, especially in accounts drawn up for internal management as distinct from financial reporting. The methods used for purposes of management accounting are often very similar to, and possibly identical with, those used in the SNA. Because so many different methods are liable to be used in business accounts, it is quite impossible to suggest precise algorithms, or even simple rules of thumb, which would be generally applicable for purposes of transforming data on stock changes in business accounts to the data required by the System. Each case has to be treated individually taking account of the precise way in which the business accounts have been drawn up.

Work-in-progress and long periods of production

42. Work-in-progress consists of stocks of goods held by an establishment or enterprise which have been produced as outputs from that establishment's or enterprise's processes of production but which still require further processing and are not in a form in which they can suitably be delivered to a purchaser. Work-in-progress is most important in industries in which production has a long gestation period such as agriculture or certain capital goods industries. For example, agricultural production may require productive activity to be carried out several months, or possibly years, before the output is ready to be sold. Similarly, the construction of a ship, power station or dam may take several years to complete.

43. In the case of a structure for which a contract of sale has been agreed in advance before production commences, the structure is treated in the System as being delivered and sold to the purchaser in stages. In this case, the partially completed structure as it exists at the end of each accounting period is not treated as work-in-progress, i.e., stocks held by producer, but as already belonging to the purchaser. It is therefore treated as gross fixed capital

formation on the part of the purchaser. Nevertheless, even when a large structure is treated as being delivered and sold to the purchaser in stages in this way, there may still be important work-in-progress to be accounted for within each accounting period before each successive stage is completed and deemed to be delivered. In the case of a structure which has not been sold in advance and for which no contract of sale exists, the whole of the work-in-progress has to be treated as forming part of the stock of outputs held by the producer and properly accounted for in the production account.

44. For purposes of the accounts it is necessary to decide not merely when, but how often, work-in-progress is to be recorded, and to decide on an appropriate method of valuation. If the producer's costs remain stable over the period of production - i.e., wage rates and the prices of materials, fuel and other inputs remain constant - it may be sufficient to record the work-in-progress once per accounting period at the end of the period. However, if prices and costs are changing, the value of work-in-progress has to be calculated more frequently, especially under conditions of high inflation.

45. The amount of work-in-progress completed within a given period of time should be valued on the basis of the production costs incurred within that period - i.e., intermediate costs plus compensation of employees. Almost by definition, it is not possible to find suitable market prices at which to value the goods which make up work-in-progress because they consist of products which are not yet in a marketable form. Thus, work-in-progress should be valued in the same way as non-market output elsewhere in the System. While there might be some advantages in adding a mark-up to production costs for the expected profit on completion, this is not recommended.

46. When there is high inflation, the price at which the completed output is eventually sold may be considerably higher than the price prevailing when production starts and the first costs are incurred. It is not appropriate, therefore, to calculate output, value added and the operating surplus by combining input and output prices which are not consistent, or commensurate with each other because they relate to different time periods and hence to quite different general price levels. Indeed, unless explicit account is taken of the different price levels prevailing for both inputs and outputs at different times in the production process, the resulting measures of output, value added and the operating surplus may be seriously biased and distorted by the holding gains which accrue on the work-in-progress during the period of production. The problems involved are best illuminated by means of a numerical example.

47. Suppose the accounting period is divided into four sub-periods and that a particular process of production takes four sub-periods to complete. Illustrative data are shown in table .3 for a production process which takes up the entire accounting period, the eventual sale of 1,000 being realized in sub-period four. The actual costs incurred by way of intermediate consumption and compensation of employees are shown in rows (2) and (3). These same costs, revalued at the prices prevailing in sub-period (4) when the sale occurs are shown in rows (4) and (5). Inflation is assumed to be running at about 26 per cent per sub-period so that the prices of all inputs and outputs, including wage rates, double between sub-period 1 and sub-period 4. The advantage of assuming such a high rate of inflation is that it throws into sharp relief the accounting problems involved - problems which may still be quite serious at much more modest rates of inflation.

48. If value were to be calculated by subtracting the actual costs of intermediate consumption from the sale of the output (on the grounds that there are no changes in the stock of finished output for the accounting period as a whole) a figure of 713 would be obtained. However, little meaning can be attached to such a figure as inputs are being valued at four different sets of prices in the four sub-periods, only one of which is consistent with the output price, namely the set of input prices prevailing on the market at the time the output is sold. The figure of 713, although based on actual payments and receipts within the accounting period does not represent value added in an economic sense - that is, the value which is added to a given set of inputs by transforming them into output, the increase in value being calculated by referring to a single vector of input and output prices observed on the market at the same moment of time. The figures of 713 in fact consists of some value added plus an appreciable amount of holding gains in the work-in-progress. Similarly, if the operating surplus were to be calculated by subtracting from sales the actual payments made for both intermediate inputs and labor, namely 386, it would not be a proper measure of the profits earned from production as it would also include substantial holding gains on work-in-progress.

49. Similar distortions would arise if input-output coefficients were to be calculated by dividing purchases of intermediate imports by sales. For example, the coefficient were to be calculated by dividing purchases of intermediate imports by sales. For example, the coefficient for total intermediate consumption obtained this way, namely, 0.287, has a serious downward bias. Much stress is placed on input-output analysis on the need to ensure consistency of valuation across the rows of an input-output table, but it is equally important to ensure consistency of valuation within the columns. It would be quite unacceptable to value output at the prices of one period and most of the inputs at the prices of some other period, or periods, especially during high inflation.

50. The treatment of work-in-progress for a process of production which takes a long time to complete has to be consistent with the treatment of other stocks in the System. This implies that additions to work-in-progress must be valued at the prices prevailing at the time the addition takes place, while withdrawals from work-in-progress must similarly be valued at current prices. The withdrawal from work-in-progress takes place when the good is completed and a sale of the finished product is recorded, either an actual sale to a purchaser or an imputed sale of the finished product to the stock of finished products (e.g., completed houses) held by the producer valued at market prices.

51. Addition to work-in-progress takes place continuously and should, in principle, be recorded continuously. In practice, of course, they can only be recorded periodically, but it is clear that they should be recorded as frequently as possible, at least when prices are changing rapidly. In the example in table .3, additions to, and withdrawals from, work-in-progress are recorded four times, namely once each sub-period. They are shown in row (6). The additions to work-in-progress are valued by the actual costs incurred each period as shown in rows (2) and (3) above. The withdrawal in sub-period (4) is obtained by revaluing the total work-in-progress accumulated over the preceding three sub-periods at the prices of sub-period (4): this value can easily be obtained from the data in rows (4) and (5).

52. Thus, by the strict application of the logic by which output is valued in the System - i.e., at the price (or estimated price) prevailing at the time it is produced - the SNA measure of the change in work-in-progress for the accounting period as a whole becomes -236 in the example. By recognizing, and recording the gradual change in work-in-progress over the accounting period as a whole, the production account falls into place.

53. Output, defined as sales plus change in work-in-progress, is equal to 764. It must be emphasized that in this example, just as in any other case, the value of output cannot simply be equated with the value of sales. Moreover, as emphasized in previous sections, it is quite wrong to assume that because the level of stocks may be zero at the beginning and end of the accounting period, that the SNA measure of change in stocks is zero. The example considered here is a very good example of a situation in which stocks fluctuate sharply within the accounting period while being zero at both the beginning and the end of the period. In this situation, the function of the SNA measure of stock change is to remove from the value of sales that component which consists of holding gains realized by the producer during a period of rising prices.

54. By correctly recording the value of change in work-in-progress, value added becomes 477, while the operating surplus becomes 150, as shown in rows (8) and (9) of the table. The nominal holding gains eventually realized in sub-period (4) on the work-in-progress completed in each of the previous three sub-periods are shown explicitly in row (10). The nominal interest charges associated with the work-in-progress, assuming a nominal interest rate of 26 per cent (i.e., zero real rate of interest) are shown in row (11). As expected, the nominal holding gains and nominal interest charges are approximately equal. In summary, therefore, the production account for the accounting period as a whole is compiled by recording all transactions - payments and receipts - at the prices at which they actually occur without adjustment but with the inclusion in the account of the value of the change in work-in-progress estimated from actual production costs. It should be noted that the correct figure for output, after adjusting sales for the change in work-in-progress, yields input-output coefficients which are more useful analytically. For example, the ratio of total intermediate inputs (287) to total output (764) is equal to 0.37 per cent which is close to the figure of 0.400 which would be obtained if all inputs and output were to be valued at sub-period (4) prices.

55. The treatment of work-in-progress is essentially unchanged when the process of production spills over into two or more accounting periods. For simplicity, the numerical data of table .3 may be utilized again on the assumption that sub-periods (1) and (2) fall into one accounting period, while sub-periods (3) and (4) fall into the next accounting period. The consequences are illustrated in table .4. The output in the first accounting period is equal to the work-in-progress recorded for sub-periods (1) and (2). This is also recorded in the closing balance sheet for the first period, after revaluing the work-in-progress for sub-period (1) to the prices of sub-period (2), which gives a holding gain of 35. The change in the work-in-progress in the second accounting period is equal to +152 for sub-period (3) and -650 for sub-period (4), giving a total of -198. Thus, output in the second period is equal to 502. The remaining details are given in table .4. The fact that output is not split approximately equally between the two accounting periods reflects the fact that the whole of the operating surplus is attributed to the second period. It would be possible to rework the whole example by distributing the eventual operating surplus of 150 over

the four sub-periods by adding the appropriate mark-up to costs when valuing the work-in-progress. The additional complication does not seem to be justified. In any case, it is doubtful whether it is theoretically appropriate to record profits in advance of the sale taking place. For this reason, it is preferable, as well as much simpler, to value work-in-progress on the basis of the costs actually incurred, without a mark-up for expected profit.

56. These conclusions of this section may be summarized algebraically as follows for a process of production which takes n sub-periods to complete.

Let w_i = value of the addition to work-in-progress in sub-period i as measured by actual production costs incurred in i

$r_i w_i$ = wi revalued at the prices and wage rates of sub-period n in which the sale occurs: $r_n = 1$

v = value of the sale in n

The value of the change in work-in-progress for all n periods together

$$= \sum_{i}^{n} w_i - \sum_{i}^{n} r_i w_i$$

$$= \sum^{n-1} w_i (1 - r_i) \quad \text{given } r_n = 1$$

$$\text{Total output} = v + \sum_{i}^{n-1} w_i (1 - r_i)$$

$$\text{Operating surplus} = \text{Output} - \sum w_i = v - \sum_{i}^{n} r_i w_i$$

57. It can be seen, therefore, that the operating surplus is calculated at the vector of input and output prices prevailing in sub-period n when the sale takes place. It would also be possible to distribute the output over the n sub-periods, if desired:

output = w_i $\quad i = 1, 2, \ldots n-1$

while output = w_n + operating surplus $\quad i = n$

$$= v - \sum_{i}^{n-1} r_i w_i$$

58. As already stated, there would be no difficulty about distributing the operating surplus over all n periods if this were felt to be important. The measurement of total output, value added and the operating surplus over the n periods as a whole would be unaffected by such a distribution.

59. These conclusions may be restated verbally in the following way.

(1) Additions to, or withdrawals from work-in-progress should be recorded as they occur: if they take place continuously they should, in principle, be recorded

continuously. In practice, they must be recorded as frequently as possible when prices are changing, the total accounting period being divided into as many sub-periods as possible for this purpose. During a period of high inflation or rapidly changing relative prices, the sub-periods should be no longer than a month.

(2) Additions to work-in-progress should be valued at their actual costs of production during the relevant sub-period. Withdrawals from work-in-progress in the form of completed products should be valued at the estimated total costs of producing the finished product calculated at the input prices and wage rates prevailing in the sub-period in which the withdrawal actually takes place less any production costs incurred in that sub-period.

Work-in-progress in agriculture

60. It is particularly important to make estimates of changes in work-in-progress for industries whose patterns of production or sales are subject to strong seasonal influences which lead to marked fluctuations in the level of work-in-progress over the year. The estimates are needed not only to arrive at correct measures of output over the year as a whole, especially under high inflation, but also when it is decided to compile accounts for shorter time periods, such as half-years or quarters.

61. It is possible to measure work-in-progress for crop production in agriculture, and hence to arrive at quarterly measures of output for crop production, by following the principles outlined above. The value of the work-in-progress completed each month, as quarter, should be estimated on the basis of the actual production costs incurred. While the growing crops themselves may be regarded as work-in-progress in a physical sense, it is neither necessary nor desirable to attempt to place a putative value on these crops just as no attempt is made to value directly other kinds of work-in-progress which are not in a marketable form. The harvesting of the crops may be treated at the completion of the production process at which point the harvested crops are either sold or entered into the producer's stocks of finished products.

62. If the crop production takes n sub-periods to complete, the crop being harvested in sub-period n, the accounting is relatively straightforward using the notation defined above. Output in sub-periods prior to the harvest is measured by w_i while output in the sub-period in which the harvest occurs is given by $v - r_i w_i$. This method may be applied even if the period of the crop production does not coincide with a calendar year, or fall entirely within the same accounting period. Of course, if the crops once harvested are not immediately all sold, their entry into stocks held by the producer and their subsequent withdrawal must be accounted for by means of general principles explained earlier for stocks of finished outputs.

Stocks of raw materials or other goods destined for intermediate consumption

63. Stocks of raw materials, components, semi-processed goods or finished goods may be held by enterprises for use as intermediate inputs into their processes of production. The finished goods may consist of items such as office materials, foodstuffs, or clothing which may equally well be used for final consumption as for immediate consumption, and the stocks held by service producers, including government producers, typically consist of goods which have alternative uses.

64. Intermediate consumption is valued at the purchaser's price prevailing at the time the good is fed into the process of production. Purchases of goods destined for intermediate consumption are recorded at the purchaser's prices paid at the time the goods were acquired. When goods spend some time in stock before being used up as intermediate consumption, the value of purchases may diverge from the value of intermediate consumption for the same two reasons that the value of sales diverges from value of output; namely, the quantities purchased and quantities actually consumed may diverge while the prices at which they need to be recorded may also differ.

65. Following the same principles which govern the treatment of changes in stocks of outputs, the appropriate value of changes in stocks of intermediate goods is given by the difference between the value of the goods purchased for intermediate consumption and the value of the intermediate goods actually used up in production; that is,

the value of the changes in stocks of intermediate goods = the value of purchases of intermediate goods = the value of intermediate goods actually consumed in production

66. It follows that changes in stocks of intermediate goods should be measured by valuing each entry into stock at the purchaser's price prevailing at the time of acquisition and each withdrawal for use in consumption at the purchaser's price prevailing at the time of use. The total value of the change in stocks over the accounting period, or any shorter sub-period, is then given by subtracting the cumulative value of all withdrawals from the cumulative value of all additions within the period in question.

67. As the method of measurement is identical to that used for stocks of goods produced as outputs, the resulting measure has all the same properties, and behaves in the same way, as changes in the value of stocks of outputs. It is necessary, therefore, to repeat the detailed discussions of the earlier sections of this chapter and such discussions will not be duplicated here. Instead, the discussion here will be confined to the additional points which arise when measures of changes in the values of the stocks of intermediate goods are combined with these for outputs and work-in-progress.

68. Firstly, a small technical difference may be noted between output and input in so far as

output = sales + change in stocks of outputs

whereas,

intermediate consumption = purchases - change in stocks of inputs

The difference in sign for changes in stocks follows from the opposite directions in which inputs and outputs, and purchases and sales, flow. Combining the above two relationships:

value added = output - intermediate consumption

= sales of outputs - purchases of inputs +
change in stocks of both inputs and outputs

69. Thus, if the objective is to calculate value added directly from data on sales and purchases, it is not necessary to distinguish stocks of outputs. All the stocks held by the producer may be merged together and a single figure calculated for the changes in the value of all stocks held. Similarly, in order to calculate the operating surplus it is not strictly necessary to differentiate stocks of outputs from stocks of inputs. For these reasons, the two kinds of stocks are often not separately distinguished from each other in business accounts.

70. However, it is necessary to record output and intermediate consumption explicitly in the production accounts of the System, and in particular in the input-output tables. For this reason, it is necessary to distinguish changes in the stocks of intermediate inputs from changes in the stocks of outputs or work-in-progress. In any case, disaggregated data on changes in the value of stocks of different kinds of commodities are needed in the System in order to transform data on the purchases and sales of individual commodities into data on the corresponding inputs and outputs, and to be able to balance uses and resources generally.

71. Finally, it should be noted that holding gains or losses on stocks of goods hold for intermediate consumption may easily be as large as those on stocks of outputs or work-in-progress. Moreover, the holding gains on inputs and outputs are cumulative so that their combined value may become very substantial in a period of high inflation. For this reason, profits at historic costs arc measured in business accounts are liable greatly to exceed the gross operating surplus as recorded in the system under inflationary conditions.

Stocks held by wholesalers and retailers

72. One of the main functions of wholesalers and retailers is to hold large stocks of goods for their customers to choose from. The output of a wholesaler or retailer is measured by the trade margin which cannot, of course, be defined simply as the difference between the price at which the wholesaler or retailer sells a good and the price which he paid for the good when this difference may include a holding gain.

Let P_1 = the purchaser's price paid by the wholesaler or retailer when the good was purchased and entered the stocks held by the wholesaler or retailer

P_2 = the purchaser's price which the wholesaler or retailer would have to pay to purchase an identical replacement at the time the good is sold again

P_3 = the price at which the wholesaler or retailer actually sells the good.

73. The time at which the output is to be recorded is the time at which the wholesaler or retailer sells the good. This is also the same time at which the good is withdrawn from the wholesaler or retailer's stocks to be sold. The margin must be measured at the prices prevailing when the output is recorded: it follows therefore that:

(1) output = margin = $P_3 - P_2$

(2) holding gain = $P_2 - P_1$

Table .1

Numerical examples showing the calculation of: the values and volumes of stock changes holding gains and nominal interest costs

Example	Quantities and prices of stocks held at the end of each sub-period					Total
	Sub-period					
	0	1	2	3	4	
A.						
Quantities	100	120	140	160	180	
Prices	0.6	0.8	1.0	1.2	1.4	
Values	60	96	140	192	252	
Change in stocks:						
SNA		16	20	24	28	88
Volume at $\bar{p}$ = 1.11		22	22	22	22	88
Holding gains:						
Realized						
Unrealized					104	104
Nominal interest costs		14	23	23	45	115
B.						
Quantities	100	500	500	400	200	
Prices	0.6	0.8	1.0	1.2	1.4	
Values	60	400	500	480	280	
Change in stocks:						
SNA		320		-120	-280	-80
Volume at $\bar{p}$ = 1.13		453		-113	-227	113
Holding gains:						
Realized				60	120	180
Unrealized					120	120
Interest costs		14	94	118	113	339

Table .1 (continued)

	Quantities and prices of stocks held at the end of each sub-period					
	Sub-period					
Example	0	1	2	3	4	Total
C.						
Quantities	500	300	100	0	500	
Prices	0.6	0.8	1.0	1.2	1.4	
Values	300	240	100	0	700	
Change in stocks:						
SNA		-160	-200	-120	700	220
Volume at $\overline{p} = 1$		-200	-200	-100	500	0
Holding gains						
Realized		40	80	60		180
Unrealized						0
Interest costs		71	57	24		152
D.						
Quantities	0	200	400	600	0	
Prices	0.6	0.8	1.0	1.2	1.4	
Values	0	160	400	720	0	
Change in stocks:						
SNA		160	200	240	-840	-240
Volume at $\overline{p} = 1$		200	200	200	-600	0
Holding gains						
Realized					240	240
Unrealized						
Interest costs			38	94	170	302

Table .2

The treatment of changes in stock: a summary

Examples from table .1

	A	B	C	D
Opening balance sheet value	60	60	300	0
SNA measure of stock change, of which:	88	-80	220	-220
change in volume	88	113	0	0
revaluation from sales to output prices	0	-193	20	-220
Realized holding gains	0	180	180	220
Unrealized holding gains	104	120	0	0
Closing balance sheet value	252	280	700	0

Table .3

Example of the treatment of work-in-progress during inflation

		Sub-period				
		1	2	3	4	Total
	At actual prices and wage rates					
(1)	Sales	0	0	0	1 000	1 000
(2)	Intermediate consumption	55	70	72	90	287
(3)	Compensation of employees	60	77	80	110	327
	At prices and wage rates of sub-period 4					
(4)	Intermediate consumption	110	110	90	90	400
(5)	Compensation of employees	120	120	100	110	450
(6)	SNA value of changes in stocks = additions to, or subtractions from, work-in-progress	115	147	152	-650	-236
(7)	Output = sales + change in work-in-progress					= 1 000 - 236 = 764
(8)	Value added = output - intermediate consumption					= 764 - 287 = 477
(9)	Operating surplus = value added - compensation of emp.					= 477 - 327 = 150
(10)	Nominal realized holding gains =	115	83	38		236
(11)	Nominal interest charges at 26% =	120	86	39		245

Note: The withdrawal from stocks in sub-period 4 equals the total work-in-progress completed in sub-periods 1 to 3 revalued at sub-period 4 prices.

Table .4

Example of treatment of work-in-progress during inflation

(continued from table .3)

First accounting period = sub-periods 1 and 2

Second accounting period = sub-periods 3 and 4

	First accounting period	Second accounting period
Output = sales + change in work-in-progress	262	502
Value added = output - intermediate cons.	137	340
Operating surplus = value added - comp. of emp.	0	150
Opening balance sheet	0	297
Change in work-in-progress	262	-498
Holding gains	35	201
Closing balance sheet	297	0

Note: In the first period, the holding gains accrue on sub-period 1 output which is revalued at sub-period 2 prices in the closing balance sheets. In the second period, the holding gains accrue on the opening stock of work-in-progress plus sub-period 3 output.

Annex 6: THE LEASING OF EQUIPMENT AND THE RENTING OF BUILDINGS*

1. The owners of capital goods such as machinery, equipment, buildings, or other structures frequently put such assets at the disposition of other institutional units for specified periods of time in return for some form of payment. An arrangement of this kind may be described as a temporary exchange of ownership rights. The terms on which such temporary exchanges of ownership rights are arranged are usually stipulated in a formal agreement, or contract, between the two institutional units concerned which will also specify the amount, frequency and timing of the payments required in return by the original owner.

The leasing of machinery, equipment or other durables

2. It is useful to clarify some terminology first. When one institutional unit A transfers ownership rights over a capital good temporarily to a second unit B, A is said to "hire" or "lease" that good to B, while B is said to "rent" that good from A. The payment which B makes to A is described as a "rental". A is said to be the "lessor" and B the "lessee".

3. There are two types of leasing which are treated quite differently in the System, namely "operating leasing" and "financial leasing". Financial leasing is an arrangement whereby the exchange of ownership rights is expected to extend over most, or all, of the useful, or economic, life of the asset so that the exchange of ownership is regarded by both parties to the transaction as being *de facto* permanent rather than temporary. In such cases, it is more realistic to treat the lessee as purchasing the asset rather than renting it, and this is the way financial leasing is usually treated in practice, in commercial as well as economic accounts. The difference in treatment between operating and financial leasing is spelled out in the following paragraphs.

Operating leasing

4. An operating lease is an arrangement whereby the owner of some machine, equipment or other durable good hires it to another institutional unit for a limited period of time, after which it is expected to be returned to the original owner in more or less the same condition as when it was hired, apart from normal wear and tear. The period of time over which the good is leased may be short or long, and need not necessarily be specified in advance at the time the good is leased, except that the period of the lease should not be expected to cover the entire economic life of the good.

5. As the lessor expects to receive back the good in question and then to be able to hire it out again, or otherwise use it, institutional units engaged in operating leasing tend to be enterprises which are engaged on the production of a specific kind of service.

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* Draft reviewed by the Expert Group on SNA Co-ordination but not yet revised by the author.

(1) Leasing enterprises must maintain stocks of particular kinds of durable goods in good working order which they can hire on demand or at short notice. They usually also offer a range of different models or qualities from which to choose. In this respect, the economic function of a leasing enterprise is not unlike that of a wholesaler or retailer, and leasing is sometimes a secondary activity of a wholesaler or retailer. Manufacturers may also engage in the operating leasing of their own products as a secondary activity.

(2) Leasing enterprises tend to be specialists in the operation of the equipment which they hire. They have to repair and maintain the stock of goods which are awaiting hire, and they often assume responsibility for the servicing, repair or immediate replacement of their goods while they are hired out to users or lessees. This can be one of the reasons why some lessees may prefer to rent rather than purchase, especially if they do not have the resources or expertise to carry out the servicing themselves, as in the case of complex electronic equipment for example, or if the user cannot risk being deprived of the use of the equipment and requires an immediate replacement in the event of a major equipment failure, breakdown or accident.

6. Operating leasing, including the short-term hiring of equipment, is obviously much more economical and efficient than purchasing for users who require special types of equipment only intermittently or exceptionally. Such equipment would be underutilized if purchased outright. However, as already mentioned, operating leasing also offers advantages to users who utilize equipment continuously over long periods if they wish to be able to change such equipment frequently in response to their changing needs, or if they do not have the necessary resources or staff to maintain and repair the equipment properly, or if they wish to be guaranteed an immediate replacement in the event of a major breakdown.

7. Thus, an enterprise engaged on leasing is effectively providing a range of services, and leasing enterprises are therefore treated in the System as producers of market services, the value of which is measured by the rentals paid by the lessees. It should be noted that operating leasing does not cover situations in which the owner of equipment also provides staff to operate the equipment on behalf of the client, such services being classified differently. The activity of operating leasing is described in the ISIC as "Renting of machinery and equipment without operator and of personal and household goods": it constitutes Division 71 of the ISIC.

Financial leasing

8. Financial leasing is an arrangement whereby the lessor finances the purchase of a durable good for the benefit of a single institutional unit, the lessee. From an economic point of view the relationship between the lessor and lessee is entirely different from under an operating lease.

(1) Under a financial lease, the goods are chosen by the lessee and delivered directly from the producer to the lessee. Any kind of machinery or equipment can be the subject of a financial lease. The lessee plans to use the good over its entire economic lifetime and assumes complete responsibility for its servicing and maintenance.

(2) The lessor's role is confined to providing the funds for the purchase and the lessor does not expect to take possession of the goods, except in the case of default by the lessee. The lessor does not, therefore, need to have any expertise in the goods or equipment leased. Any kind of enterprise with the necessary funds available can engage in financial leasing.

(3) The lessor finances the purchase of the good and then arranges a lease such that the total rentals paid by the lessee over the duration of the lease, after deducting the lessor's interest charges and any incidental costs incurred by the lessor, are sufficient to cover most, or all, of the cost of the purchase. At the end of the lease, the lessee usually has the option to purchase the goods, possibly for a nominal sum, or the lessor may sell the goods to a third party. The exact terms on which financial leases are arranged may vary considerably but the economic reality behind a financial lease can be summarized a follows:

> (1) De facto, the lessor provides a loan to the lessee which enables the lessee to acquire a good of his own choice, the rental payments being calculated in such a way as to cover the lessor's interest charges and incidental costs and also to repay in installments most, or all, of the imputed loan.
>
> (2) De facto, the lessee enjoys ownership rights over the goods over its expected economic lifetime: the lessee incurs the risks associated with the investment decision (i.e. the decision to purchase the capital goods) and is entitled to whatever returns, or profits, are generated by using the goods in production.

9. When distinguishing between financial and operating leases, attention should be paid to the economic substance, or reality, of the leasing arrangements, rather than some specific feature of the leasing contract such as the exact percentage of the imputed loan which is repaid out of the total rentals paid over the duration of the lease, or the exact arrangements for the disposal of the goods at the termination of the lease. There are always likely to be leases which share some of the attributes of an operating lease as well as those of financial leasing, especially since some ingenuity may be used to try to draw up a financial lease in such a way that it looks like an operating lease in order to gain tax advantages, or for other reasons. It should be noted that in many countries financial leasing is treated in commercial or business accounting in much the same way as proposed in the System in order to bring out the economic substance or reality behind the leasing arrangements. It is proposed, therefore, that financial leases should be treated in the System in the following way.

(1) The durable goods or equipment, which is the object of a financial lease should be treated as being purchased and owned by the lessee. It is therefore recorded as gross fixed capital formation by the lessee and the subsequent capital consumption in respect of the goods is recorded in the production accounts of the lessee. The capital good is also recorded as a tangible asset in the balance sheet of the lessee.

(2) The lessor is recorded as making an imputed loan to the lessee equal in value to the purchaser's price paid for the goods. The amount of the imputed loan outstanding is shown as an asset in the balance sheet of the lessor and as a liability in the balance sheet of the lessee.

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(3) The rental payments have to be split into two components: one component consists of a repayment of the loan which is recorded in the capital finance accounts of the lessor and lessee while the other component is the payment of interest on the outstanding loan which is recorded in the income and outlay accounts of the lessor and lessee. When the rentals are constant over the period of the lease, the proportion of the rental which is interest declines over time. The interest component can be calculated using the rate of interest prevailing at the time the lease was drawn up and on the basis of which the rentals specified in the lease were calculated, the remaining component which constitutes a repayment of the loan being determined residually.

(4) If the cumulative loan repayments as so calculated fall short of the purchasers' price of the goods, so that there is still some imputed loan outstanding at the end of the lease, the proceeds from the eventual sale of the asset by the lessor can be treated as a further repayment. If some loan is still outstanding after the sale of the goods, it must be treated as being written off voluntarily by the lessor at that point.

10. The type of productive activity on which enterprises providing financial leases are engaged is financial intermediation: their production is therefore classified under "Financial intermediation", Division 65, of the ISIC; it is treated as a separate class, namely 6591.

The renting of buildings or other structures

11. When one institutional unit A transfers ownership rights over a building or other structure (but not the land on which it is situated) temporarily to a second unit B, A is the lessor who "leases" that structure to B, while B is the lessee, or tenant, "rents" it from A. The payment which B makes to A is described as a "rental". (Although such a payment is often described simply as a "rent", the use of the noun "rent" to describe a payment is reserved in the System to payments of rent on land in order to avoid confusion between rentals on buildings and rents on land as these two payments are treated quite differently from each other in the System.)

12. When the legal owner of a building leases the building, or a part of it, to another institution, the owner is considered in the System as engaging in a form of production. He is therefore treated as the proprietor of an enterprise engaged in the production of building or housing services. The output may be considered to be the provision of working, or living, space to the lessee, or tenant, and the value of the output is measured by the rental paid, including any supplementary "charges" paid by the tenant, but excluding taxes.

13. The costs of production which the proprietor may incur in the production of building services may consist of:

(i) Materials purchased for repair and maintenance, or the cost of repairs and maintenance provided by other enterprises;

(ii) Administrative costs or agency fees, insurance services charges;

(iii) Compensation of employees paid to staff employed directly by the owner for purposes of cleaning, repairs, maintenance or security;

(iv) Consumption of fixed capital.

14. The gross value added at market prices consists, as usual, of the value of the output, i.e. the rentals, less the intermediate production costs, while the net operating surplus of the proprietor consists of the gross value added less capital consumption, compensation or employees (if any), and taxes on products or production, in particular property taxes.

15. Certain institutional units, such as insurance corporations with large funds to invest or local government units, may own and lease large numbers of business premises and dwellings and engage in the provision of building or housing services on a large scale, so that a considerable amount of productive activity is involved for which detailed and elaborate production accounts are required. It is also common for the production of housing services by government units to be subsidized by those units, possibly to the extent that the rents charged are so low that the production has to be treated as non-market. On the other hand, some proprietors may own only one or two buildings, or parts thereof, whose leasing they regard as a form of investment rather than production. The leases may extend over many years, or indefinitely into the future, with the tenants being required to carry out most or all repairs and maintenance. In such cases, the productivity activity of the proprietor may be minimal and the production account only rudimentary.

16. In many cases, the owner and the occupier of a building or dwelling coincide: in other words, the building or housing services are produced for own consumption. In such cases, an imputation is made for the own-account production of housing services, but only when the services form part of the final consumption of households. When the building is used in the production of other goods or services, no imputation is made for the intermediate consumption of building services, into that process, the gross value added from the production of building services being implicitly consolidated with that from the process of production in which that building or structure is used. The gross value added of building services is thus not omitted from GDP as a whole, but the distribution of gross value added among different industries is affected by the extent to which buildings are owned or rented by their users. Of course, this distribution is equally affected by the extent to which producers own, rather than rent, the machinery and equipment which they use.

17. In the case of owner-occupied housing, failure to impute would lead to the complete omission of the housing services from GDP and from final consumption. The System therefore requires such an imputation to be made. The occupier, as tenant, is deemed to pay a rental to himself as owner equal to the rent that would be paid on the market for accommodation of the same size, quality and type. The imputed rent constitutes part of the household's consumption expenditures.

18. On the production side, the houseowner is deemed to be the owner of an unincorporated enterprise engaged in the production of housing services. The gross value added at market prices from the production of owner-occupied housing is equal to the imputed rent less any repairs, maintenance or other costs of production incurred by the owner. When the repairs, maintenance or other costs are purchased on the market such expenditures must be treated as intermediate consumption by the houseowner and not as a final consumption by the household. If the repairs, maintenance, etc. are carried out on own account, by the houseowner, or other members of the household, the imputed value of the repairs should, in principle, include an estimate for the labour costs involved as well as the cost of materials purchased. The value of the repairs thus imputed should also be treated as intermediate consumption by the houseowner and not as final consumption by the household.

19. The net operating surplus of the houseowner is equal to the gross value added at factor cost less capital consumption and any taxes on products or on production, such as property taxes. It should be noted that to be treated as a tax on production any property tax must be levied on the houseowner as proprietor and not on himself as occupier or tenant. Any tax on housing which is levied equally on tenants and houseowners is a tax paid out of income.

20. The own-account production of repairs, maintenance, decoration, etc. by houseowners may be a significant activity in some countries, developed as well as developing. In principle, the output and gross value added from the activity should be attributed to the construction industry and not the production of housing services. The houseowner is thus deemed to engage in two different productive activities, but to simplify the complex imputations involved the production of repairs, maintenance, etc. can, in practice, be treated as a secondary activity of the unincorporated enterprise which is deemed to produce the housing services. If a consolidated production account is compiled for the two activities combined, it is not necessary to impute a value for the output of repairs, maintenance, etc. as this output is entirely consumed as an intermediate input into the production of housing services. The net effect of consolidation is to reduce the gross value added of the unincorporated enterprise owned by the houseowner by the value of any materials purchased for the repairs and maintenance and to reduce the net operating surplus of the houseowner by the value of the imputed compensation of employees for the work done on repairs. Thus, whenever repairs have to be carried out they reduce the gross value added of the enterprise owned by the houseowner, and also reduce the net operating surplus of the houseowner by the amount of any imputed compensation of employees for own-account work by members of the household on repairs and maintenance.
